MITSUBISHI ELECTRIC

Mitsubishi Electric AC Servo System

MITSUBISHI ELECTRIC SERVO SYSTEM MELSERVO-J5

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Object Dictionary)

-MR-J5-_G_-_N1
-MR-J5W_-_G-N1

SAFETY INSTRUCTIONS

Please read the instructions carefully before using the equipment.

To use the equipment correctly, do not attempt to install, operate, maintain, or inspect the equipment until you have read through this manual, installation guide, and appended documents carefully. Do not use the equipment until you have a full knowledge of the equipment, safety information and instructions.

In this manual, the safety instruction levels are classified into "WARNING" and "CAUTION".

⚠ **WARNING**	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠ **CAUTION**	Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight injury.

Note that the CAUTION level may lead to a serious consequence depending on conditions.

Please follow the instructions of both levels because they are important to personnel safety.

Forbidden actions and required actions are indicated by the following diagrammatic symbols.

	Indicates a forbidden action. For example, "No Fire" is indicated by  .
	Indicates a required action. For example, grounding is indicated by  .

In this manual, precautions for hazards that can lead to property damage, instructions for other functions, and other information are shown separately in the "POINT" area.

After reading this manual, keep it accessible to the operator.

[Installation/wiring]

⚠WARNING

- To prevent an electric shock, turn off the power and wait for 15 minutes or more before starting wiring and/or inspection.
- To prevent an electric shock, ground the servo amplifier.
- To prevent an electric shock, any person who is involved in wiring should be fully competent to do the work.
- To prevent an electric shock, mount the servo amplifier before wiring.
- To prevent an electric shock, connect the protective earth (PE) terminal of the servo amplifier to the protective earth (PE) of the cabinet, then connect the grounding lead wire to the ground.
- To prevent an electric shock, do not touch the conductive parts.

[Setting/adjustment]

⚠WARNING

- To prevent an electric shock, do not operate the switches with wet hands.

[Operation]

⚠WARNING

- To prevent an electric shock, do not operate the switches with wet hands.

[Maintenance]

⚠WARNING

- To prevent an electric shock, any person who is involved in inspection should be fully competent to do the work.
- To prevent an electric shock, do not operate the switches with wet hands.

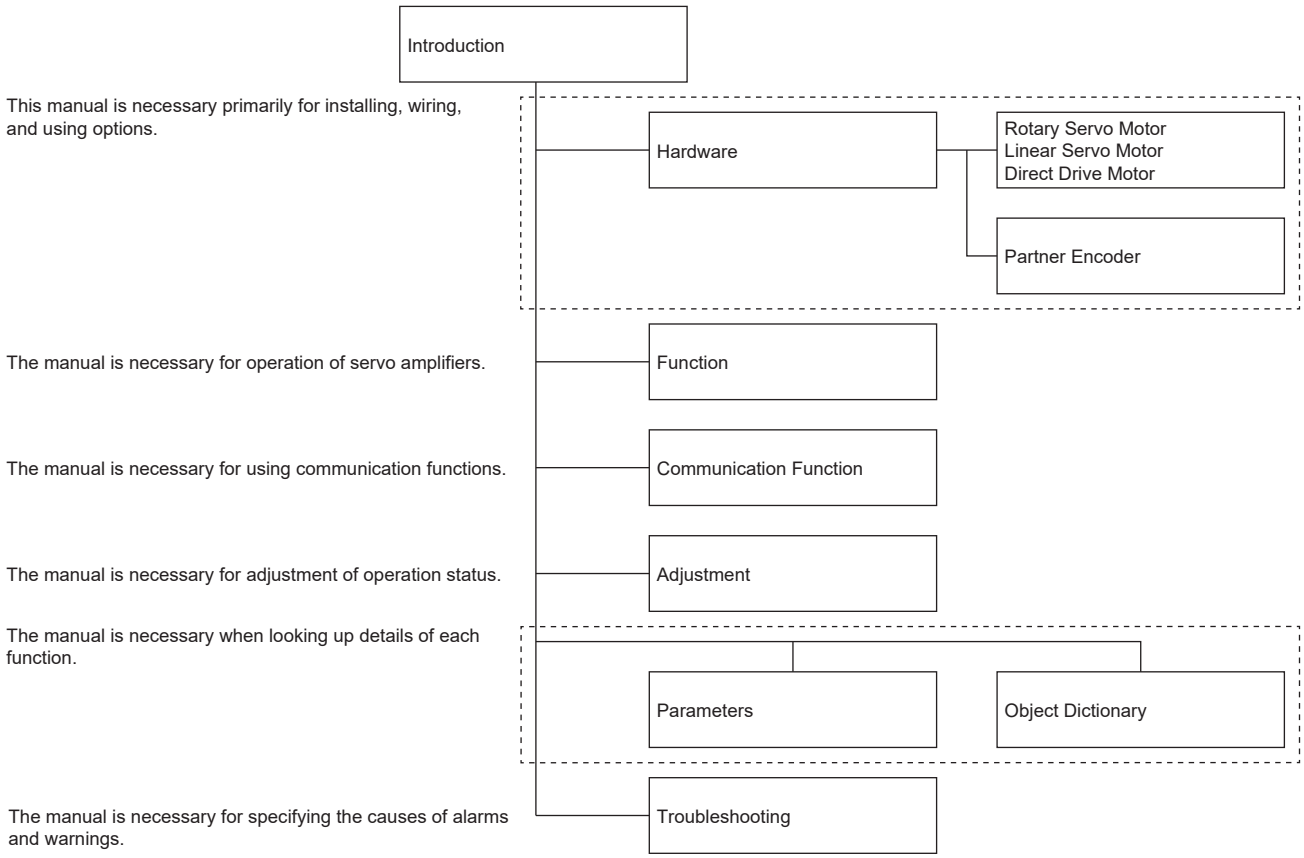
ABOUT THE MANUAL

Point

e-Manuals are Mitsubishi Electric FA electronic book manuals that can be browsed with a dedicated tool.
e-Manuals enable the following:

- Searching for desired information in multiple manuals at the same time (manual cross searching)
- Jumping from a link in a manual to another manual for reference
- Browsing for hardware specifications by scrolling over the components shown in product illustrations
- Bookmarking frequently referenced information
- Copying sample programs to engineering tools

If using the servo for the first time, prepare and use the following related manuals to ensure that the servo is used safely. The manuals used differ depending on the interface of the servo amplifier. For details, refer to the User's Manual (Introduction).



U.S. CUSTOMARY UNITS

U.S. customary units are not shown in this manual. Convert the values if necessary according to the following table.

Quantity	SI (metric) unit	U.S. customary unit
Mass	1 [kg]	2.2046 [lb]
Length	1 [mm]	0.03937 [inch]
Torque	1 [N•m]	141.6 [oz•inch]
Moment of inertia	1 [(× 10^{-4} kg•m^2)]	5.4675 [oz•$inch^2$]
Load (thrust load/axial load)	1 [N]	0.2248 [lbf]
Temperature	N [°C] × 9/5 + 32	N [°F]

CONTENTS

1 SUMMARY OF OBJECT DICTIONARY

Each data such as control parameters, command values, and feedback values is handled as an object composed of an Index value, object name, data type, access rule, and other elements. The object data can be exchanged between the master station (external device) and the slave stations (servo amplifiers). The aggregate of these objects is called an object dictionary.
This manual describes the object dictionary which is necessary for servo amplifiers to be used via EtherCAT communication.

1.1 Structure

The following shows the detailed structure of the object dictionary.

Item	Explanation
Data Type	Indicates the object size.
Access	Indicates whether the object can be read or written. RO: Only reading is available RW: Reading and writing are available
Mapping	Indicates whether the object can be mapped in cyclic communication. Impossible: The object cannot be mapped to TxPDO or RxPDO. TxPDO: The object can be mapped to TxPDO. RxPDO: The object can be mapped to RxPDO. TxPDO/RxPDO: The object can be mapped to TxPDO and RxPDO.
Default	Indicates the initial value of the object.
Range	Indicates the object range. If a value outside the range is written, a parameter external error (error code CCD4h) occurs.
Units	Indicates the object unit.
Save	Indicates whether data can be stored in the non-volatile memory. Impossible: Data cannot be stored in the non-volatile memory. The value of the data written from the controller returns to the value of "Default" when the power is shut off. Possible: Data can be stored in the non-volatile memory with [Store Parameters (Obj. 1010h)]. Data is saved in the servo parameter corresponding to the object. For the corresponding servo parameters, refer to "Parameter".
Parameter	Indicates where data is stored in the non-volatile memory.
Description	Describes the object.

Object units

This section explains the pos units, vel units, and acc units used in this manual.

pos units

The standard unit can be changed using [Pr. PT01.2 Unit for position data] as shown in the following table.

Setting value	Standard unit
2	degree
3	pulse

vel units

The speed unit can be changed using [Pr. PT01.1 Speed/acceleration/deceleration unit selection] as shown in the following table. The command unit can be changed to "pulse" or "0.001 degree" using [Pr. PT01.2].

Setting value	Unit
0	0.01 r/min, 0.01 mm/s *1
1	Command unit/s

*1 "0.01 mm/s" is used in the linear servo motor control mode.

acc units

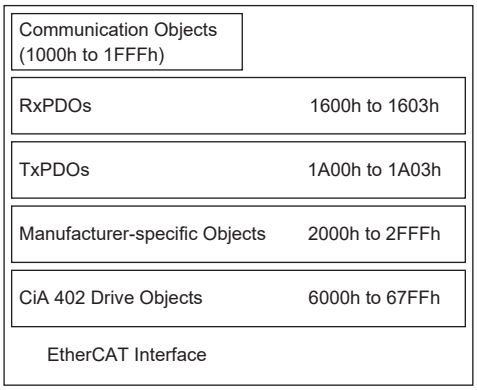
The acceleration unit can be changed using [Pr. PT01.1] as shown in the following table. The command unit can be changed to "pulse" or "0.001 degree" using [Pr. PT01.2].

Setting value	Unit
0	ms
1	Command unit/s^2

1.2 Using appropriate object numbers

This manual describes the object numbers of 1-axis servo amplifiers and A-axis of multi-axis servo amplifiers. When setting objects for B-axis and C-axis of multi-axis servo amplifiers, refer to the following figures to use appropriate object numbers.

- 1-axis servo amplifier



- Multi-axis servo amplifier

Communication Objects (1000h to 1FFFh)			
RxPDOs	1600h to 1603h	1610h to 1613h	1620h to 1623h
TxPDOs	1A00h to 1A03h	1A10h to 1A13h	1A20h to 1A23h
Manufacturer-specific Objects	2000h to 2FFFh	3000h to 3FFFh	4000h to 4FFFh
CiA 402 Drive Objects	6000h to 67FFh	6800h to 6FFFh	7000h to 77FFh
EtherCAT Interface	A-axis	B-axis	C-axis *1

*1 This is for the MR-J5W3-_G-N1 servo amplifier.

2 General Objects

2.1 [Device Type (Obj. 1000h)]

[Device Type (Obj. 1000h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	00020192h	00020192h (fixed)	—	Impossible	—

Description

Indicates supported profile information. The value "00020192h" which indicates a servo drive defined with the CiA 402 profile is returned.

Bit	Symbol	Description
0 to 7	—	0192h (CiA 402)
8 to 15	—	0002h (Servo drive)

2.2 [Error Register (Obj. 1001h)]

[Error Register (Obj. 1001h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	—	00h to 01h	—	Impossible	—

Description

Whether an alarm has occurred is returned. When a multi-axis servo amplifier is used, the alarm occurrence in all axes is indicated. When an alarm occurs in any of the axes, the bit 0 turns on. When alarms are deactivated in all axes, the bit 0 turns off.

Bit	Symbol	Description
0	—	Always on while an alarm is occurring.
1 to 7	—	—

2.3 [Manufacturer Device Name (Obj. 1008h)]

[Manufacturer Device Name (Obj. 1008h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
VISIBLE STRING	RO	Impossible	—	—	—	Impossible	—

Description

The model name of the servo amplifier is returned.

Ex.

If MR-J5-10G-N1 is used, the model name is returned as shown below.

"MR-J5-G-N1 " (Empty spaces after the model name are filled with blank spaces to make the name 32 characters long.)

2.4 [Manufacturer Hardware Version (Obj. 1009h)]

[Manufacturer Hardware Version (Obj. 1009h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
VISIBLE STRING	RO	Impossible	—	—	—	Impossible	—

Description

The hardware version of the servo amplifier is returned.

2.5 [Manufacturer Software Version (Obj. 100Ah)]

[Manufacturer Software Version (Obj. 100Ah: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
VISIBLE STRING	RO	Impossible	—	—	—	Impossible	—

Description

The firmware version of the servo amplifier is returned.

2.6 [Store parameters (Obj. 1010h)]

[Store parameters (Obj. 1010h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	—	—	—	Impossible	—

Description

The total number of Sub Indexes is returned.

Default	Range	Description
01h	01h (fixed)	Sub Index 1 is supported.

[Save all parameters (Obj. 1010h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	Impossible	00000001h	00000000h to FFFFFFFFh	—	Impossible	—

Description

Writing "save" (= 65766173h) saves all parameters (servo parameters and network parameters) that can be stored in the non-volatile memory.

The descriptions of the read values are as follows.

Bit	Symbol	Description
0	—	0: The parameters cannot be saved with the command. (The parameters are being saved.) 1: The parameters can be saved with the command. (No parameters are being saved.)
1	—	0: The parameters are not automatically saved.
2 to 7	—	—

2.7 [Restore default parameters (Obj. 1011h)]

[Restore default parameters (Obj. 1011h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	—	—	—	Impossible	—

Description

The total number of Sub Indexes is returned.

Default	Range	Description
01h	01h (fixed)	Sub Index 1 is supported.

[Restore all default parameters (Obj. 1011h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	Impossible	00000001h	00000000h to FFFFFFFFh	—	Impossible	—

Description

All parameters (servo parameters and network parameters) that can be stored in the non-volatile memory can be reset to the factory setting. To reset the servo parameters and network parameters to the factory setting, write "64616F6Ch" (= reverse order of ASCII code of "load") in this object, and cycle the power or reset the software.

When a multi-axis servo amplifier is used, the servo parameters of all axes are initialized.

The read value is always "1" (initializing values).

2.8 [Identity Object (Obj. 1018h)]

[Identity Object (Obj. 1018h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	04h	04h (fixed)	—	Impossible	—

Description

The total number of Sub Indexes is returned.

[Vendor ID (Obj. 1018h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	00000A1Eh (fixed)	—	Impossible	—

Description

The vendor ID of the servo amplifier is returned.

[Product Code (Obj. 1018h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	00000000h to FFFFFFFFh	—	Impossible	—

Description

The product code of the selected servo amplifier is returned. The following shows the product code for each model.

- MR-J5-_G_-N1: 00000301h
- MR-J5-_G_-RJN1: 00000304h
- MR-J5W2_-_G-N1: 00000302h
- MR-J5W3_-_G-N1: 00000303h

[Revision Number (Obj. 1018h: 03h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	00000000h to FFFFFFFFh	—	Impossible	—

Description

The revision number of the selected servo amplifier is returned.

[Serial Number (Obj. 1018h: 04h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	00000000h to FFFFFFFFh	—	Impossible	—

Description

The serial number of the servo amplifier is returned. The value "00000000h" is returned.

2.9 [Error Settings (Obj. 10F1h)]

[Error Settings (Obj. 10F1h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	02h	02h (fixed)	—	Impossible	—

Description

The total number of Sub Indexes is returned.

[Local Error Reaction (Obj. 10F1h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	Impossible	—	00000000h (fixed)	—	Impossible	—

Description

Reserved

[Sync Error Counter Limit (Obj. 10F1h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	9	0 to 32767	—	Impossible	[Pr. PN18]

Description

Set the threshold until [AL. 086.1 Network communication error 1] is detected.

When "0" is set, [AL. 086.1] does not occur.

If PDO data is not updated with Sync0, the internal error counter will be added by "3".

When the PDO data is updated successfully, the internal error counter is subtracted by "1".

Refer to the following for the example of the counter.

Receive (SM2) Event	1	0	1	0	1	0	1	0	1	0	1
Internal Error Counter (Setting value = 9)	0	3	2	5	4	7	6	9 (error)	9	9	9

If detection of [AL. 086.1] is disabled, the servo motor cannot be stopped at occurrence of a communication error. The larger the setting value, the longer it takes to stop the servo motor when there is a communication error. Be careful when changing the set value as there is a danger of collision.

2.10 [Version number (Obj. 67FEh)]

[Version number (Obj. 67FEh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	00040100h	00040100h (fixed)	—	Impossible	—

Description

The version number of the supported CiA 402 profile is returned.

Bit	Symbol	Description
0 to 7	—	Sub version No. (0)
8 to 15	—	Minor version No. (1)
16 to 23	—	Major version No. (4)
24 to 31	—	Reserved (0)

3 PDO Mapping Objects

3.1 [1st Receive PDO Mapping (Obj. 1600h)]

[1st Receive PDO Mapping (Obj. 1600h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RW	Impossible	—	00h to 20h	—	Impossible	PDO mapping

Description

Indicates the total number of objects included in PDO. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

[Mapped Object 001 (Obj. 1600h: 01h)] - [Mapped Object 032 (Obj. 1600h: 20h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	Impossible	—	00000000h to FFFFFFFFh	—	Impossible	PDO mapping

Description

Set the object to be mapped to RPDO. When an alignment GAP is defined in PDO, set the values of the Index and Sub Index of the object to "0000h" and "00h", respectively.

Index	Sub	Name	Default
1600h	00h	1st Receive PDO Mapping	0Ah
	01h	Mapped Object 001	60600008h
	02h	Mapped Object 002	00000008h
	03h	Mapped Object 003	60400010h
	04h	Mapped Object 004	2D010010h
	05h	Mapped Object 005	2D020010h
	06h	Mapped Object 006	2D030010h
	07h	Mapped Object 007	607A0020h
	08h	Mapped Object 008	60FF0020h
	09h	Mapped Object 009	2D200020h
	0Ah	Mapped Object 010	60710010h
	0Bh	Mapped Object 011	00000000h
	0Ch	Mapped Object 012	00000000h
	0Dh	Mapped Object 013	00000000h
	0Eh	Mapped Object 014	00000000h
	0Fh	Mapped Object 015	00000000h
	10h	Mapped Object 016	00000000h
	11h	Mapped Object 017	00000000h
	12h	Mapped Object 018	00000000h
	13h	Mapped Object 019	00000000h
	14h	Mapped Object 020	00000000h
	15h	Mapped Object 021	00000010h
	16h	Mapped Object 022	00000000h
	17h	Mapped Object 023	00000000h
	18h	Mapped Object 024	00000000h
	19h	Mapped Object 025	00000000h
	1Ah	Mapped Object 026	00000010h
	1Bh	Mapped Object 027	00000000h
	1Ch	Mapped Object 028	00000000h
	1Dh	Mapped Object 029	00000000h
	1Eh	Mapped Object 030	00000000h
	1Fh	Mapped Object 031	00000000h
	20h	Mapped Object 032	00000000h

3.2 [2nd Receive PDO Mapping (Obj. 1601h)]

[2nd Receive PDO Mapping (Obj. 1601h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RW	Impossible	—	00h to 20h	—	Impossible	PDO mapping

Description

Indicates the total number of objects included in PDO. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

[Mapped Object 001 (Obj. 1601h: 01h)] - [Mapped Object 032 (Obj. 1601h: 20h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	Impossible	—	00000000h to FFFFFFFFh	—	Impossible	PDO mapping

Description

Set the object to be mapped to RPDO. When an alignment GAP is defined in PDO, set the values of the Index and Sub Index of the object to "0000h" and "00h", respectively.

Index	Sub	Name	Default
1601h	00h	2nd Receive PDO Mapping	0Eh
	01h	Mapped Object 001	60600008h
	02h	Mapped Object 002	00000008h
	03h	Mapped Object 003	60400010h
	04h	Mapped Object 004	2D010010h
	05h	Mapped Object 005	2D020010h
	06h	Mapped Object 006	2D030010h
	07h	Mapped Object 007	607A0020h
	08h	Mapped Object 008	60FF0020h
	09h	Mapped Object 009	2D200020h
	0Ah	Mapped Object 010	60710010h
	0Bh	Mapped Object 011	60810020h
	0Ch	Mapped Object 012	60830020h
	0Dh	Mapped Object 013	60840020h
	0Eh	Mapped Object 014	60870020h
	0Fh	Mapped Object 015	00000000h
	10h	Mapped Object 016	00000000h
	11h	Mapped Object 017	00000000h
	12h	Mapped Object 018	00000000h
	13h	Mapped Object 019	00000000h
	14h	Mapped Object 020	00000000h
	15h	Mapped Object 021	00000000h
	16h	Mapped Object 022	00000000h
	17h	Mapped Object 023	00000000h
	18h	Mapped Object 024	00000000h
	19h	Mapped Object 025	00000000h
	1Ah	Mapped Object 026	00000000h
	1Bh	Mapped Object 027	00000000h
	1Ch	Mapped Object 028	00000000h
	1Dh	Mapped Object 029	00000000h
	1Eh	Mapped Object 030	00000000h
	1Fh	Mapped Object 031	00000000h
	20h	Mapped Object 032	00000000h

3.3 [3rd Receive PDO Mapping (Obj. 1602h)]

[3rd Receive PDO Mapping (Obj. 1602h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RW	Impossible	—	00h to 20h	—	Impossible	PDO mapping

Description

Indicates the total number of objects included in PDO. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

3.4 [4th Receive PDO Mapping (Obj. 1603h)]

[4th Receive PDO Mapping (Obj. 1603h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RW	Impossible	—	00h to 20h	—	Impossible	PDO mapping

Description

Indicates the total number of objects included in PDO. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

3.5 [1st Transmit PDO Mapping (Obj. 1A00h)]

[1st Transmit PDO Mapping (Obj. 1A00h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RW	Impossible	—	00h to 20h	—	Impossible	PDO mapping

Description

The total number of objects included in PDO is returned. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

[Mapped Object 001 (Obj. 1A00h: 01h)] - [Mapped Object 032 (Obj. 1A00h: 20h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	Impossible	—	00000000h to FFFFFFFFh	—	Impossible	PDO mapping

Description

Set the object to be mapped to TPDO. When an alignment GAP is defined in PDO, set the values of the Index and Sub Index of the object to "0000h" and "00h", respectively.

Index	Sub	Name	Default
1A00h	00h	1st Transmit PDO Mapping	0Ah
	01h	Mapped Object 001	60610008h
	02h	Mapped Object 002	00000008h
	03h	Mapped Object 003	60410010h
	04h	Mapped Object 004	2D110010h
	05h	Mapped Object 005	2D120010h
	06h	Mapped Object 006	2D130010h
	07h	Mapped Object 007	60640020h
	08h	Mapped Object 008	606C0020h
	09h	Mapped Object 009	60F40020h
	0Ah	Mapped Object 010	60770010h
	0Bh	Mapped Object 011	00000000h
	0Ch	Mapped Object 012	00000000h
	0Dh	Mapped Object 013	00000000h
	0Eh	Mapped Object 014	00000000h
	0Fh	Mapped Object 015	00000000h
	10h	Mapped Object 016	00000000h
	11h	Mapped Object 017	00000000h
	12h	Mapped Object 018	00000000h
	13h	Mapped Object 019	00000000h
	14h	Mapped Object 020	00000000h
	15h	Mapped Object 021	00000000h
	16h	Mapped Object 022	00000000h
	17h	Mapped Object 023	00000000h
	18h	Mapped Object 024	00000000h
	19h	Mapped Object 025	00000000h
	1Ah	Mapped Object 026	00000000h
	1Bh	Mapped Object 027	00000000h
	1Ch	Mapped Object 028	00000000h
	1Dh	Mapped Object 029	00000000h
	1Eh	Mapped Object 030	00000000h
	1Fh	Mapped Object 031	00000000h
	20h	Mapped Object 032	00000000h

3.6 [2nd Transmit PDO Mapping (Obj. 1A01h)]

[2nd Transmit PDO Mapping (Obj. 1A01h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RW	Impossible	—	00h to 20h	—	Impossible	PDO mapping

Description

The total number of objects included in PDO is returned. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

[Mapped Object 001 (Obj. 1A01h: 01h)] - [Mapped Object 032 (Obj. 1A01h: 20h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	Impossible	—	00000000h to FFFFFFFFh	—	Impossible	PDO mapping

Description

Set the object to be mapped to TPDO. When an alignment GAP is defined in PDO, set the values of the Index and Sub Index of the object to "0000h" and "00h", respectively.

Index	Sub	Name	Default
1A01h	00h	2nd Transmit PDO Mapping	00h
	01h	Mapped Object 001	00000000h
	02h	Mapped Object 002	00000000h
	03h	Mapped Object 003	00000000h
	04h	Mapped Object 004	00000000h
	05h	Mapped Object 005	00000000h
	06h	Mapped Object 006	00000000h
	07h	Mapped Object 007	00000000h
	08h	Mapped Object 008	00000000h
	09h	Mapped Object 009	00000000h
	0Ah	Mapped Object 010	00000000h
	0Bh	Mapped Object 011	00000000h
	0Ch	Mapped Object 012	00000000h
	0Dh	Mapped Object 013	00000000h
	0Eh	Mapped Object 014	00000000h
	0Fh	Mapped Object 015	00000000h
	10h	Mapped Object 016	00000000h
	11h	Mapped Object 017	00000000h
	12h	Mapped Object 018	00000000h
	13h	Mapped Object 019	00000000h
	14h	Mapped Object 020	00000000h
	15h	Mapped Object 021	00000000h
	16h	Mapped Object 022	00000000h
	17h	Mapped Object 023	00000000h
	18h	Mapped Object 024	00000000h
	19h	Mapped Object 025	00000000h
	1Ah	Mapped Object 026	00000000h
	1Bh	Mapped Object 027	00000000h
	1Ch	Mapped Object 028	00000000h
	1Dh	Mapped Object 029	00000000h
	1Eh	Mapped Object 030	00000000h
	1Fh	Mapped Object 031	00000000h
	20h	Mapped Object 032	00000000h

3.7 [3rd Transmit PDO Mapping (Obj. 1A02h)]

[3rd Transmit PDO Mapping (Obj. 1A02h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RW	Impossible	—	00h to 20h	—	Impossible	PDO mapping

Description

The total number of objects included in PDO is returned. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

3.8 [4th Transmit PDO Mapping (Obj. 1A03h)]

[4th Transmit PDO Mapping (Obj. 1A03h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RW	Impossible	—	00h to 20h	—	Impossible	PDO mapping

Description

The total number of objects included in PDO is returned. To set a value in an object of Sub Index 1 or later, write "00h" in the object. After setting the value for objects of Sub Index 1 or later, write the total number of objects mapped to PDO.

4 Sync Manager Communication Objects

4.1 [Sync Manager Communication Type (Obj. 1C00h)]

[Sync Manager Communication Type (Obj. 1C00h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	04h	04h (fixed)	—	Impossible	—

Description

The total number of Sub Indexes (= 4) is returned.

[Sync Manager 0 (Obj. 1C00h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	01h	01h (fixed)	—	Impossible	—

Description

This means Mailbox Write (from the master station to the slave station).

[Sync Manager 1 (Obj. 1C00h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	02h	02h (fixed)	—	Impossible	—

Description

This means Mailbox Read (from the slave station to the master station).

[Sync Manager 2 (Obj. 1C00h: 03h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	03h	03h (fixed)	—	Impossible	—

Description

This means Process Data Write (Outputs) (from the master station to the slave station).

[Sync Manager 3 (Obj. 1C00h: 04h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	04h	04h (fixed)	—	Impossible	—

Description

This means Process Data Read (Inputs) (from the slave station to the master station).

4.2 [Sync Manager RxPDO assign (Obj. 1C12h)]

[Sync Manager RxPDO assign (Obj. 1C12h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RW	Impossible	01h	00h to 04h	—	Impossible	—

Description

The total number of Sub Indexes (= 4) is returned.

[Assigned PDO 001 (Obj. 1C12h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	1600h	1600h to 1623h	—	Impossible	—

Description

Set which mapping table to be assigned to Sync Manager 2 (RxPDO). Refer to the following table for the mapping tables selectable on multi-axis servo amplifiers.

Axis	Selectable mapping tables
A-axis	[1st Receive PDO Mapping (Obj. 1600h)] to [4th Receive PDO Mapping (Obj. 1603h)]
B-axis	[1st Receive PDO Mapping (Obj. 1610h)] to [4th Receive PDO Mapping (Obj. 1613h)]
C-axis	[1st Receive PDO Mapping (Obj. 1620h)] to [4th Receive PDO Mapping (Obj. 1623h)]

[Assigned PDO 002 (Obj. 1C12h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	—	1600h to 1623h	—	Impossible	—

Description

Set which mapping table to be assigned to Sync Manager 2 (RxPDO). Refer to the following for details.

☞ Page 35 [Assigned PDO 001 (Obj. 1C12h: 01h)]

[Assigned PDO 003 (Obj. 1C12h: 03h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	—	1600h to 1623h	—	Impossible	—

Description

Set which mapping table to be assigned to Sync Manager 2 (RxPDO). Refer to the following for details.

☞ Page 35 [Assigned PDO 001 (Obj. 1C12h: 01h)]

[Assigned PDO 004 (Obj. 1C12h: 04h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	—	1600h to 1623h	—	Impossible	—

Description

Set which mapping table to be assigned to Sync Manager 2 (RxPDO). Refer to the following for details.

☞ Page 35 [Assigned PDO 001 (Obj. 1C12h: 01h)]

4.3 [Sync Manager TxPDO assign (Obj. 1C13h)]

[Sync Manager TxPDO assign (Obj. 1C13h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RW	Impossible	01h	00h to 04h	—	Impossible	—

Description

The total number of Sub Indexes (= 4) is returned.

[Assigned PDO 001 (Obj. 1C13h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	1A00h	1A00h to 1A23h	—	Impossible	—

Description

Set which mapping table to be assigned to Sync Manager 3 (TxPDO). Refer to the following table for the mapping tables selectable on multi-axis servo amplifiers.

Axis	Selectable mapping tables
A-axis	[1st Transmit PDO Mapping (Obj. 1A00h)] to [4th Transmit PDO Mapping (Obj. 1A03h)]
B-axis	[1st Transmit PDO Mapping (Obj. 1A10h)] to [4th Transmit PDO Mapping (Obj. 1A13h)]
C-axis	[1st Transmit PDO Mapping (Obj. 1A20h)] to [4th Transmit PDO Mapping (Obj. 1A23h)]

[Assigned PDO 002 (Obj. 1C13h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	—	1A00h to 1A23h	—	Impossible	—

Description

Set which mapping table to be assigned to Sync Manager 3 (TxPDO). Refer to the following for details.

☞ Page 36 [Assigned PDO 001 (Obj. 1C13h: 01h)]

[Assigned PDO 003 (Obj. 1C13h: 03h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	—	1A00h to 1A23h	—	Impossible	—

Description

Set which mapping table to be assigned to Sync Manager 3 (TxPDO). Refer to the following for details.

☞ Page 36 [Assigned PDO 001 (Obj. 1C13h: 01h)]

[Assigned PDO 004 (Obj. 1C13h: 04h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	—	1A00h to 1A23h	—	Impossible	—

Description

Set which mapping table to be assigned to Sync Manager 3 (TxPDO). Refer to the following for details.

☞ Page 36 [Assigned PDO 001 (Obj. 1C13h: 01h)]

4.4 [SM output parameter (Obj. 1C32h)]

[SM output parameter (Obj. 1C32h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	0Ch	0Ch (fixed)	—	Impossible	—

Description

The total number of Sub Indexes is returned.

[Synchronization Type (Obj. 1C32h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	—	0000h or 0002h	—	Impossible	—

Description

Select synchronous mode or asynchronous mode.

00h: Free Run

01h: Synchronous (not supported)

02h: DC Sync0

03h: DC Sync1 (not supported)

This can be rewritten only in the Pre-Operational state.

If the setting value of [Obj. 1C33h: 01h] is changed, this object also changes to the same value as [Obj. 1C32h: 01h].

[Cycle Time (Obj. 1C32h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	Impossible	250000	Refer to the following.	ns	Impossible	—

Description

Select an RxPDO communication cycle.

125000: 0.125 ms

250000: 0.25 ms

500000: 0.5 ms

1000000: 1 ms

2000000: 2 ms

4000000: 4 ms

8000000: 8 ms

Rewriting during the Pre-Operational state can change the PDO communication cycle.

Only the communication cycles shown above can be set.

The communication cycles are limited depending on the servo amplifiers and the functions to be used. For details, refer to "Function restrictions" in the following manual.

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Introduction)

[Synchronization Types supported (Obj. 1C32h: 04h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	0005h	0005h (fixed)	—	Impossible	—

Description

Bit 0: FreeRun supported
Bit 1: Synchronous supported (not supported)
Bit 2 to Bit 4: DC Type supported
000 = No DC (not supported)
001 = DC Sync0
010 = DC Sync1 (not supported)
100 = Subordinated Application with fixed Sync0 (not supported)
Bit 5 to Bit 6: Shift settings
00 = No Output Shift supported
01 = Output Shift with local time (not supported)
10 = Output Shift with Sync1 (not supported)
Bit 7 to Bit 9: Reserved
Bit 10: Delay Time should be measured (not supported)
Bit 11: Delay Time is fix. (not supported)
Bit 12 to Bit 13: Reserved
Bit 14: Dynamic Cycle Times (not supported)
Bit 15: Reserved

[Minimum Cycle Time (Obj. 1C32h: 05h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	—	ns	Impossible	—

Description

The minimum communication cycle is returned.

Servo amplifier	Minimum communication cycle
MR-J5-_G-_N1	125000
MR-J5W_-_G-N1	250000

[Calc and Copy Time (Obj. 1C32h: 06h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	—	ns	Impossible	—

Description

The minimum value of the delay time from data receiving to outputting is returned. The received value varies depending on the setting of the communication cycle.

[Delay Time (Obj. 1C32h: 09h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	0	0 (fixed)	ns	Impossible	—

Description

"0" is returned.

[Cycle Time Too Small (Obj. 1C32h: 0Ch)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	0	0 (fixed)	ns	Impossible	—

Description

"0" is returned.

4.5 [SM input parameter (Obj. 1C33h)]

[SM input parameter (Obj. 1C33h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	0Ch	0Ch (fixed)	—	Impossible	—

Description

The total number of Sub Indexes is returned.

[Synchronization Type (Obj. 1C33h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	—	0000h or 0002h	—	Impossible	—

Description

Select synchronous mode or asynchronous mode.

00h: Free Run

01h: Synchronous (not supported)

02h: DC Sync0

03h: DC Sync1 (not supported)

This can be rewritten only in the Pre-Operational state.

If the setting value of [Obj. 1C32h: 01h] is changed, this object also changes to the same value as [Obj. 1C32h: 01h].

[Cycle Time (Obj. 1C33h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	Impossible	250000	Refer to the following.	ns	Impossible	—

Description

Select a TxPDO communication cycle.
125000: 0.125 ms
250000: 0.25 ms
500000: 0.5 ms
1000000: 1 ms
2000000: 2 ms
4000000: 4 ms
8000000: 8 ms
Rewriting during the Pre-Operational state can change the PDO communication cycle.
Only the communication cycles shown above can be set.
If the setting value of [Obj. 1C32h: 02h] is changed, this object also changes to the same value as [Obj. 1C32h: 01h].
The communication cycles are limited depending on the servo amplifiers and the functions to be used. For details, refer to "Function restrictions" in the following manual.
MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Introduction)

[Synchronization Types supported (Obj. 1C33h: 04h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	0005h	0005h (fixed)	—	Impossible	—

Description

Bit 0: FreeRun supported
Bit 1: Synchronous supported (not supported)
Bit 2 to Bit 4: DC Type supported
000 = No DC (not supported)
001 = DC Sync0
010 = DC Sync1 (not supported)
100 = Subordinated Application with fixed Sync0 (not supported)
Bit 5 to Bit 6: Shift settings
00 = No Output Shift supported
01 = Output Shift with local time (not supported)
10 = Output Shift with Sync1 (not supported)
Bit 7 to Bit 9: Reserved
Bit 10: Delay Time should be measured (not supported)
Bit 11: Delay Time is fix. (not supported)
Bit 12 to Bit 13: Reserved
Bit 14: Dynamic Cycle Times (not supported)
Bit 15: Reserved

[Minimum Cycle Time (Obj. 1C33h: 05h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	—	ns	Impossible	—

Description

The minimum communication cycle is returned.

Servo amplifier	Minimum communication cycle
MR-J5-_G-_N1	125000
MR-J5W_-_G-N1	250000

[Calc and Copy Time (Obj. 1C33h: 06h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	—	ns	Impossible	—

Description

The minimum value of the delay time from data inputting to transmitting is returned. The received value varies depending on the setting of the communication cycle.

[Delay Time (Obj. 1C33h: 09h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	0	0 (fixed)	ns	Impossible	—

Description

The delay time from Sync0 to input is returned. The received value varies depending on the setting of the communication cycle.

[Cycle Time Too Small (Obj. 1C33h: 0Ch)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	0	0 (fixed)	ns	Impossible	—

Description

"0" is returned.

5 Parameter Objects

The objects of Parameter Objects are structured as follows. Access servo parameters other than [PV group parameters] with Sub Index set to 00h.

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	Impossible	—	—	—	Possible	*1

*1 Corresponds to servo parameters [Pr. PA _ _] to [Pr. PN _ _].

5.1 [PA01 (Obj. 2001h)] - [PA44 (Obj. 202Ch)]

The values of the basic setting servo parameters ([Pr. PA _ _]) can be obtained and set.

5.2 [PB01 (Obj. 2081h)] - [PB92 (Obj. 20DCh)]

The values of the gain/filter setting servo parameters ([Pr. PB _ _]) can be obtained and set.

5.3 [PC01 (Obj. 2101h)] - [PC90 (Obj. 215Ah)]

The values of the extension setting servo parameters ([Pr. PC _ _]) can be obtained and set.

5.4 [PD01 (Obj. 2181h)] - [PD72 (Obj. 21C8h)]

The values of the I/O setting servo parameters ([Pr. PD _ _]) can be obtained and set.

5.5 [PE01 (Obj. 2201h)] - [PE88 (Obj. 2258h)]

The values of the extension setting 2 servo parameters ([Pr. PE _ _]) can be obtained and set.

5.6 [PF01 (Obj. 2281h)] - [PF99 (Obj. 22E3h)]

The values of the extension setting 3 servo parameters ([Pr. PF _ _]) can be obtained and set.

5.7 [PL01 (Obj. 2401h)] - [PL72 (Obj. 2448h)]

The values of the servo motor extension setting servo parameters ([Pr. PL _ _]) can be obtained and set.

5.8 [PT01 (Obj. 2481h)] - [PT90 (Obj. 24DAh)]

The values of the positioning control servo parameters ([Pr. PT _ _]) can be obtained and set.

5.9 [PN01 (Obj. 2581h)] - [PN32 (Obj. 25A0h)]

The values of the network setting servo parameters ([Pr. PN_ _]) can be obtained and set.

5.10 [PV group parameters (Obj. 2691h)]

The values of the positioning extension setting servo parameters ([Pr. PV _ _]) can be obtained and set. 01h to 20h of Sub Indexes correspond to [Pr. PV01] to [Pr. PV32].

[PV group parameters (Obj. 2691h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	32	32 (fixed)	—	Impossible	—

Description

The total number of Sub Indexes (= 32) is returned.

[PV01 (Obj. 2691h: 01h)] - [PV32 (Obj. 2691h: 20h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	Impossible	—	—	—	Possible	[Pr. PV01] - [Pr. PV32]

Description

The values of [Pr. PV01] to [Pr. PV32] can be obtained and set.

6 Alarm Objects

6.1 [Alarm history newest (Obj. 2A00h)]

[Alarm history newest (Obj. 2A00h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	7	7 (fixed)	—	Possible	Alarm history

Description

The total number of Sub Indexes (= 7) is returned.

[Alarm No. (Obj. 2A00h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	00000000h	00000000h to FFFFFFFFh	—	Possible	Alarm history

Description

The number of the alarm that has occurred is returned. The description is as follows.

When there is no history, "00000000h" is returned.

Bit 0 to Bit 15: Alarm detail number

Bit 16 to Bit 31: Alarm number

For example, if [AL. 538.1] occurs, "05380001h" is returned.

[Alarm time (Hour) (Obj. 2A00h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	00000000h	00000000h to FFFFFFFFh	hour	Possible	Alarm history

Description

The accumulated power-on time from time of factory shipment until an alarm occurrence is returned. When there is no history, "00000000h" is returned.

[Alarm2 No. (Obj. 2A00h: 03h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	0000h	0000h to FFFFh	—	Possible	Alarm history

Description

The value "0000h" is returned.

Bit 0 to Bit 7: Alarm detail number

Bit 8 to Bit 15: Alarm number

[Alarm time (second) (Obj. 2A00h: 04h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	00000000h	00000000h to FFFFFFFFh	second	Possible	Alarm history

Description

The alarm time is returned as a 32-bit integer (time passed from January 1, 1970, 0:00:00.000000000).

If time data cannot be obtained from the network, alarm occurrence time shows the cumulative power-on time from January 1, 1970, 0:00:00.000000000.

Use this object together with [Alarm time (nanosecond) (Obj. 2A00h: 05h)] according to the system.

[Alarm time (nanosecond) (Obj. 2A00h: 05h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	00000000h	00000000h to FFFFFFFFh	nanosecond	Possible	Alarm history

Description

The digits after the ones indicating a second in alarm time are returned as a 32-bit integer. A value is returned in units of nanoseconds, but only the values in milliseconds increase.

For example, if an alarm occurs on January 1, 2000, 12:00:00.001, "000F4240h (1000000)" will be returned.

[Alarm time (time zone) (Obj. 2A00h: 06h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	Impossible	00000000h	80000000h to 7FFFFFFFh	minute	Possible	Alarm history

Description

The time zone at an alarm occurrence time is returned as a 32-bit integer.

If no setting exists, "80000000h" will be returned.

[Alarm time (summer time) (Obj. 2A00h: 07h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	Impossible	00000000h	80000000h to 7FFFFFFFh	minute	Possible	Alarm history

Description

The daylight saving time at an alarm occurrence time is returned as a 32-bit integer.

If no setting exists, "80000000h" will be returned.

6.2 [Alarm history _1 (Obj. 2A01h)] - [Alarm history _15 (Obj. 2A0Fh)]

The second (2A01h) to 16th (2A0Fh) latest alarm information of the alarm history is returned. The description of each Sub Index is the same as that of [Alarm history newest (Obj. 2A00h: 00h)].

6.3 [Clear alarm history (Obj. 2A40h)]

[Clear alarm history (Obj. 2A40h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	0000h	0000h to FFFFh	—	Impossible	—

Description

Writing "1EA5h" clears the alarm history.

When the object is read, "0000h" is returned.

6.4 [Current alarm (Obj. 2A41h)]

[Current alarm (Obj. 2A41h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	TxPDO	00000000h	00000000h to FFFFFFFFh	—	Impossible	—

Description

The latest alarm that has occurred in the servo amplifier is returned. When no alarm has occurred, "00000000h" is returned.

Bit 0 to Bit 15: Alarm detail number

Bit 16 to Bit 31: Alarm number

For example, if [AL. 538.1] occurs, "05380001h" is returned.

6.5 [Parameter error number (Obj. 2A44h)]

[Parameter error number (Obj. 2A44h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	0000h	0000h to FFFFh	—	Impossible	—

Description

During [AL. 037 Parameter error] occurrence, the number of the servo parameters that caused the error is returned.

Refer to the following object for the number of each servo parameter which causes the error.

☞ Page 47 [Parameter error list 1 (Obj. 2A45h: 01h)] - [Parameter error list 254 (Obj. 2A45h: FEh)]

6.6 [Parameter error list (Obj. 2A45h)]

[Parameter error list (Obj. 2A45h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	254	254 (fixed)	—	Impossible	Parameter error list

Description

The total number of Sub Indexes (= 254) is returned.

[Parameter error list 1 (Obj. 2A45h: 01h)] - [Parameter error list 254 (Obj. 2A45h: FEh)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	0000h	0000h to FFFFh	—	Impossible	Parameter error list

Description

During [AL. 037 Parameter error] occurrence, a list of servo parameter numbers that caused the alarm is returned.
The descriptions of [Parameter error list 1 (Obj. 2A45h: 01h)] to [Parameter error list 254 (Obj. 2A45h: FEh)] are as follows.
For example, if [Pr. PC01] is the cause of the error, "0201h" is returned.
When no error has occurred, "0000h" is returned.

Bit	Description
0 to 7	Servo parameter number
8 to 15	Servo parameter group number 00h: [Pr. PA _ _] 01h: [Pr. PB _ _] 02h: [Pr. PC _ _] 03h: [Pr. PD _ _] 04h: [Pr. PE _ _] 05h: [Pr. PF _ _] 0Bh: [Pr. PL _ _] 0Ch: [Pr. PT _ _] 0Eh: [Pr. PN _ _] 11h: [Pr. PV _ _]

6.7 [Reset alarm (Obj. 2A46h)]

[Reset alarm (Obj. 2A46h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	0000h	0000h to FFFFh	—	Impossible	—

Description

The alarm that has occurred in the servo amplifier is cleared.
Writing "1EA5h" resets an alarm. Any value other than "1EA5h" is invalid.
When the object is read, "0000h" is returned.

6.8 [Drive recorder history newest (Obj. 2A70h)]

[Drive recorder history newest (Obj. 2A70h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	7	7 (fixed)	—	Impossible	—

Description

The total number of Sub Indexes (= 7) is returned.
The data of a different history number may be read from the drive recorder depending on when [Drive recorder history newest (Obj. 2A70h)] is read and when the history is recorded in the drive recorder. Check if the data of the desired history number has been read.

[Drive recorder history index (Obj. 2A70h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	0	0 to 9999	—	Impossible	—

Description

The save Index of the drive recorder is returned.
[Drive recorder history index] displays drive record data using consecutive numbers from 0 to 9999. When data is recorded in the drive recorder, the number will increase. If the number exceeds "9999", it will return to "0" and increase again.
If the drive recorder history is cleared, counting for the save Index will start from "0".
When reading data of a specific history number with the drive recorder, if the value stored in the save Index is the same before and after reading, the read data is the data of the same history number.

[Drive recorder history alarm number (Obj. 2A70h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	00000000h	00000000h to FFFFFFFFh	—	Impossible	—

Description

The alarm number that occurred when data was recorded using the drive recorder is returned. The description is as follows.
When there is no history or the data of the drive recorder is recorded with the user settings, "00000000h" is returned.
Bit 0 to Bit 15: Alarm detail number
Bit 16 to Bit 31: Alarm number
For example, if [AL. 538.1] occurs, "05380001h" is returned.

[Drive recorder history power on time (Obj. 2A70h: 03h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	00000000h	00000000h to FFFFFFFFh	—	Impossible	—

Description

Returns the cumulative time that the drive recorder has been turned on. When there is no history, "00000000h" is returned.

[Drive recorder history time (second) (Obj. 2A70h: 04h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	00000000h	00000000h to FFFFFFFFh	—	Impossible	—

Description

The time at when recorded data in the drive recorder is returned as a 32-bit integer (time passed from January 1, 1970, 0:00:00.000000000).

If time data cannot be obtained from the network, alarm occurrence time shows the cumulative power-on time from January 1, 1970, 0:00:00.000000000.

Use this object together with [Drive recorder history time (nanosecond) (Obj. 2A70h: 05h)] according to the system.

[Drive recorder history time (nanosecond) (Obj. 2A70h: 05h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	00000000h	00000000h to FFFFFFFFh	—	Impossible	—

Description

Returns the digits after the ones indicating a second in the recording time of the drive recorder as a 32-bit integer. A value is returned in units of nanoseconds, but only the values in milliseconds increase.

For example, if an alarm occurs on January 1, 2000, 12:00:00.001, "000F4240h (1000000)" will be returned.

[Drive recorder history (time zone) (Obj. 2A70h: 06h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	Impossible	00000000h	80000000h to 7FFFFFFFh	minute	Possible	—

Description

Returns the time zone when data was recorded using the drive recorder.

If no setting exists, "80000000h" will be returned.

[Drive recorder history (summer time) (Obj. 2A70h: 07h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	Impossible	00000000h	80000000h to 7FFFFFFFh	minute	Possible	—

Description

Returns the daylight saving time at when recorded data in the drive recorder.

If no setting exists, "80000000h" will be returned.

6.9 [Drive recorder history_1 (Obj. 2A71h)] - [Drive recorder history_15 (Obj. 2A7Fh)]

The second (2A71h) to 16th (2A7Fh) of the latest history information in the drive recorder is returned. The description of each Sub Index is the same as that of [Drive recorder history newest (Obj. 2A70h)].

7 Monitor Objects

7.1 [Cumulative feedback pulses (Obj. 2B01h)]

[Cumulative feedback pulses (Obj. 2B01h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	TxPDO	—	80000000h to 7FFFFFFFh	pulse	Impossible	—

Description

The cumulative feedback pulses are returned. The cumulative feedback pulses can be cleared by writing "00001EA5h".

7.2 [Servo motor speed (Obj. 2B02h)]

[Servo motor speed (Obj. 2B02h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	r/min mm/s	Impossible	—

Description

The servo motor speed is returned.

7.3 [Droop pulses (Obj. 2B03h)]

[Droop pulses (Obj. 2B03h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	pulse	Impossible	—

Description

The value of droop pulses (encoder pulse unit) is returned.

7.4 [Cumulative command pulses (Obj. 2B04h)]

[Cumulative command pulses (Obj. 2B04h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	pulse	Impossible	—

Description

The value of cumulative command pulses (command pulse unit) is returned.

7.5 [Command pulse frequency (Obj. 2B05h)]

[Command pulse frequency (Obj. 2B05h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	kpulse/s	Impossible	—

Description

The command pulse frequency is returned.

7.6 [Regenerative load ratio (Obj. 2B08h)]

[Regenerative load ratio (Obj. 2B08h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	—	0000h to FFFFh	%	Impossible	—

Description

The regenerative load ratio is returned.

7.7 [Effective load ratio (Obj. 2B09h)]

[Effective load ratio (Obj. 2B09h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	—	0000h to FFFFh	%	Impossible	—

Description

The effective load ratio is returned.

7.8 [Peak load ratio (Obj. 2B0Ah)]

[Peak load ratio (Obj. 2B0Ah: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	—	0000h to FFFFh	%	Impossible	—

Description

The peak load ratio is returned.

7.9 [Instantaneous torque (Obj. 2B0Bh)]

[Instantaneous torque (Obj. 2B0Bh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	8000h to 7FFFh	%	Impossible	—

Description

The instantaneous torque is returned.

7.10 [Within one-revolution position (Obj. 2B0Ch)]

[Within one-revolution position (Obj. 2B0Ch: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	pulse	Impossible	—

Description

The position within one-revolution (encoder pulse unit) is returned.

7.11 [ABS counter (Obj. 2B0Dh)]

[ABS counter (Obj. 2B0Dh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	rev	Impossible	—

Description

The ABS counter is returned. For the linear servo motor control mode, the value for manufacturer setting is returned.
For the fully closed loop control mode, the ABS counter is returned in the servo motor encoder unit.

7.12 [Load inertia moment ratio (Obj. 2B0Eh)]

[Load inertia moment ratio (Obj. 2B0Eh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	—	0000h to FFFFh	0.01 times	Impossible	—

Description

The load to motor inertia ratio/load to motor mass ratio are returned.

7.13 [Bus voltage (Obj. 2B0Fh)]

[Bus voltage (Obj. 2B0Fh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	—	0000h to FFFFh	V	Impossible	—

Description

The bus voltage is returned.

7.14 [Load-side cumulative feedback pulses (Obj. 2B10h)]

[Load-side cumulative feedback pulses (Obj. 2B10h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	pulse	Impossible	—

Description

The cumulative feedback pulses from the load-side encoder are returned.

7.15 [Load-side droop pulses (Obj. 2B11h)]

[Load-side droop pulses (Obj. 2B11h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	pulse	Impossible	—

Description

The load-side droop pulses (load-side encoder pulse unit) are returned.

7.16 [Load-side encoder information 1 Z-phase counter (Obj. 2B12h)]

[Load-side encoder information 1 Z-phase counter (Obj. 2B12h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	pulse	Impossible	—

Description

The position within one-revolution of the load-side encoder is returned.

When an incremental type linear encoder is used for the load-side encoder, the Z-phase counter of the load-side encoder is returned in units of encoder pulses.

When an absolute position type linear encoder is used for the load-side encoder, the encoder absolute position is returned.

7.17 [Load-side encoder information 2 (Obj. 2B13h)]

[Load-side encoder information 2 (Obj. 2B13h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	rev	Impossible	—

Description

When the load-side encoder is an incremental type or an absolute position type of linear encoder, "00000000h" is returned.

When a rotary encoder is used for the load-side encoder, the multi-revolution counter value of the encoder is returned.

7.18 [Cumulative encoder out pulses (Obj. 2B16h)]

[Cumulative encoder out pulses (Obj. 2B16h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	pulse	Impossible	—

Description

The A/B-phase pulse output feedback total value is returned.

7.19 [Temperature of motor thermistor (Obj. 2B17h)]

[Temperature of motor thermistor (Obj. 2B17h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	8000h to 7FFFh	°C	Impossible	—

Description

The temperature of the servo motor thermistor is returned.

7.20 [Motor-side cumu. feedback pulses (before gear) (Obj. 2B18h)]

[Motor-side cumu. feedback pulses (before gear) (Obj. 2B18h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	8000h to 7FFFh	°C	Impossible	—

Description

The servo motor-side cumulative feedback pulses (before gear) (motor unit) are returned.

7.21 [Electrical angle (Obj. 2B19h)]

[Electrical angle (Obj. 2B19h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	pulse	Impossible	—

Description

The electrical angle is returned.

7.22 [Motor-side/load-side position deviation (Obj. 2B23h)]

[Motor-side/load-side position deviation (Obj. 2B23h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	pulse	Impossible	—

Description

The motor/load-side position deviation (load-side encoder pulse unit) is returned.

7.23 [Motor-side/load-side speed deviation (Obj. 2B24h)]

[Motor-side/load-side speed deviation (Obj. 2B24h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	r/min	Impossible	—

Description

The motor/load-side speed deviation is returned.

7.24 [Internal temperature of encoder (Obj. 2B25h)]

[Internal temperature of encoder (Obj. 2B25h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	8000h to 7FFFh	°C	Impossible	—

Description

The internal temperature of the encoder is returned.

7.25 [Settling time (Obj. 2B26h)]

[Settling time (Obj. 2B26h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	8000h to 7FFFh	ms	Impossible	—

Description

The settling time is returned.

7.26 [Oscillation detection frequency (Obj. 2B27h)]

[Oscillation detection frequency (Obj. 2B27h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	8000h to 7FFFh	Hz	Impossible	—

Description

The oscillation detection frequency is returned.

7.27 [Number of tough drive operations (Obj. 2B28h)]

[Number of tough drive operations (Obj. 2B28h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	—	0000h to FFFFh	number of times	Impossible	—

Description

The number of tough drive operations is returned.

7.28 [Internal temperature of amplifier (Obj. 2B2Ah)]

[Internal temperature of amplifier (Obj. 2B2Ah: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	8000h to 7FFFh	°C	Impossible	—

Description

The internal temperature of the servo amplifier is returned.

7.29 [Unit power consumption (Obj. 2B2Dh)]

[Unit power consumption (Obj. 2B2Dh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	8000h to 7FFFh	W	Impossible	—

Description

The unit power consumption is returned.

7.30 [Unit total power consumption (Obj. 2B2Eh)]

[Unit total power consumption (Obj. 2B2Eh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	Wh	Impossible	—

Description

The unit total power consumption is returned.

7.31 [Error excessive alarm margin (Obj. 2B3Fh)]

[Error excessive alarm margin (Obj. 2B3Fh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	pulse	Impossible	—

Description

The excessive error alarm margin (encoder pulse unit) is returned.

7.32 [Overload alarm margin (Obj. 2B40h)]

[Overload alarm margin (Obj. 2B40h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	8000h to 7FFFh	0.1 %	Impossible	—

Description

The overload alarm margin is returned.

7.33 [Overshoot amount (Obj. 2B41h)]

[Overshoot amount (Obj. 2B41h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 8FFFFFFFh	pulse	Impossible	—

Description

The overshoot amount (encoder pulse unit) is returned.

7.34 [Torque/thrust equivalent to disturbance (Obj. 2B42h)]

[Torque/thrust equivalent to disturbance (Obj. 2B42h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	8000h to 7FFFh	0.1 %	Impossible	—

Description

The value for torque/thrust equivalent to disturbance is returned.

7.35 [Unit power consumption 2 (Obj. 2B43h)]

[Unit power consumption 2 (Obj. 2B43h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	80000000h to 7FFFFFFFh	W	Impossible	—

Description

The unit power consumption is returned.

8 Manufacturer Specific Control Object

8.1 [Drive recorder status (Obj. 2C02h)]

[Drive recorder status (Obj. 2C02h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	0	0 to 1	—	Impossible	—

Description

The enabled/disabled status of the drive recorder is returned.

When the drive recorder does not operate or when the single sampling ends in manual setting mode, this object returns "0" (disabled status).

When the drive recorder function is operating, this object returns "1" (enabled status).

0: Disabled status

1: Enabled status

8.2 [Clear drive recorder history (Obj. 2C03h)]

[Clear drive recorder history (Obj. 2C03h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	0000h	0000h to FFFFh	—	Impossible	—

Description

Writing "1EA5h", cycling the power, or performing a software reset clears the data in the drive recorder history.

When the object is read, "0000h" is returned.

8.3 [External output pin display (Obj. 2C11h)]

[External output pin display (Obj. 2C11h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	1	00h to FFh	—	Impossible	—

Description

The number of entries in external output pin status is returned.

[External output pin display1 (Obj. 2C11h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	TxPDO	—	00000000h to FFFFFFFFh	—	Impossible	—

Description

The external output pin status 1 is returned.

1-axis servo amplifier

Bit	CN3 connector pin	Bit	CN3 connector pin	Bit	CN3 connector pin	Bit	CN3 connector pin
0	13	8	—	16	—	24	—
1	15	9	—	17	—	25	—
2	9	10	—	18	—	26	—
3	8 *1	11	—	19	—	27	—
4	—	12	—	20	—	28	—
5	—	13	—	21	—	29	—
6	—	14	—	22	—	30	—
7	—	15	—	23	—	31	—

*1 Available only on the MR-J5-_G_-RJN1.

2-axis servo amplifier

Bit	CN3 connector pin	Bit	CN3 connector pin	Bit	CN3 connector pin	Bit	CN3 connector pin
0	12	8	—	16	—	24	—
1	11	9	—	17	—	25	—
2	24	10	—	18	—	26	—
3	25	11	—	19	—	27	—
4	—	12	—	20	—	28	—
5	—	13	—	21	—	29	—
6	—	14	—	22	—	30	—
7	—	15	—	23	—	31	—

3-axis servo amplifier

Bit	CN3 connector pin	Bit	CN3 connector pin	Bit	CN3 connector pin	Bit	CN3 connector pin
0	12	8	—	16	—	24	—
1	11	9	—	17	—	25	—
2	24	10	—	18	—	26	—
3	25	11	—	19	—	27	—
4	13	12	—	20	—	28	—
5	—	13	—	21	—	29	—
6	—	14	—	22	—	30	—
7	—	15	—	23	—	31	—

8.4 [Power ON cumulative time (Obj. 2C18h)]

[Power ON cumulative time (Obj. 2C18h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	00000000h to FFFFFFFFh	hour	Impossible	—

Description

Returns the cumulative energization time of the servo amplifier.

8.5 [Number of inrush relay on/off times (Obj. 2C19h)]

[Number of inrush relay on/off times (Obj. 2C19h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	00000000h to FFFFFFFFh	number of times	Impossible	—

Description

The number of times that the inrush relay of the servo amplifier has been turned on/off is returned.

8.6 [Dynamic relay ON/OFF number (Obj. 2C1Ah)]

[Dynamic relay ON/OFF number (Obj. 2C1Ah: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	00000000h to FFFFFFFFh	number of times	Impossible	—

Description

The number of times that the dynamic brake of the servo amplifier has been used is returned.

8.7 [Machine diagnostic status (Obj. 2C20h)]

[Machine diagnostic status (Obj. 2C20h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The machine diagnostic status is returned.
[Bit 0 to 3: Friction estimation status at forward rotation]
0: Estimation in progress. (normal)
1: Estimation has finished. (normal)
2: The motor may have rotated/traveled more frequently in one direction than the other. (warning)
3: The servo motor speed may be too slow for friction estimation. (warning)
4: The change in the servo motor speed may be too small for friction estimation. (warning)
5: The acceleration/deceleration time constants may be too short for friction estimation. (warning)
6: The elapsed operation time may be insufficient. (warning)
When warning conditions for 2 to 6 are met at the same time, the lower number takes priority.
Even if a warning occurs during estimation, upon completion the status will change to "Estimation has finished".
[Bit 4 to 7: Friction estimation status at reverse rotation]
0: Estimation in progress. (normal)
1: Estimation has finished. (normal)
2: The motor may have rotated/traveled more frequently in one direction than the other. (warning)
3: The servo motor speed may be too slow for friction estimation. (warning)
4: The change in the servo motor speed may be too small for friction estimation. (warning)
5: The acceleration/deceleration time constants may be too short for friction estimation. (warning)
6: The elapsed operation time may be insufficient. (warning)
When warning conditions for 2 to 6 are met at the same time, the lower number takes priority.
Even if a warning occurs during estimation, upon completion the status will change to "Estimation has finished".
[Bit 8 to 11: Vibration estimation status]
0: Estimation in progress.
1: Estimation has finished.
[Bit 12 to 15: reserved]

8.8 [Static friction torque at forward rotation (Obj. 2C21h)]

[Static friction torque at forward rotation (Obj. 2C21h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	Impossible	—	-32768 to 32767	0.1 %	Impossible	—

Description

The static friction at forward rotation torque is returned.

8.9 [Dynamic friction torque at forward rotation (at rated speed) (Obj. 2C22h)]

[Dynamic friction torque at forward rotation (at rated speed) (Obj. 2C22h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	Impossible	—	-32768 to 32767	0.1 %	Impossible	—

Description

The dynamic friction at forward rotation torque at the rated speed is returned.

8.10 [Static friction torque at reverse rotation (Obj. 2C23h)]

[Static friction torque at reverse rotation (Obj. 2C23h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	Impossible	—	-32768 to 32767	0.1 %	Impossible	—

Description

The static friction at reverse rotation torque is returned.

8.11 [Dynamic friction torque at reverse rotation (at rated speed) (Obj. 2C24h)]

[Dynamic friction torque at reverse rotation (at rated speed) (Obj. 2C24h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	Impossible	—	-32768 to 32767	0.1 %	Impossible	—

Description

The dynamic friction at reverse rotation torque at the rated speed is returned.

8.12 [Oscillation frequency during motor stop (Obj. 2C25h)]

[Oscillation frequency during motor stop (Obj. 2C25h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	Impossible	—	-32768 to 32767	Hz	Impossible	—

Description

The vibration frequency during stop and servo-lock is returned.

8.13 [Vibration level during motor stop (Obj. 2C26h)]

[Oscillation frequency during motor stop (Obj. 2C26h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	Impossible	—	-32768 to 32767	0.1 %	Impossible	—

Description

The vibration level during stop/servo-lock is returned.

8.14 [Oscillation frequency during motor operating (Obj. 2C27h)]

[Oscillation frequency during motor operating (Obj. 2C27h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	Impossible	—	-32768 to 32767	Hz	Impossible	—

Description

The vibration frequency during operation is returned.

8.15 [Vibration level during motor operating (Obj. 2C28h)]

[Vibration level during motor operating (Obj. 2C28h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	Impossible	—	-32768 to 32767	0.1 %	Impossible	—

Description

The vibration level during operation is returned.

8.16 [Fault prediction status (Obj. 2C29h)]

[Fault prediction status (Obj. 2C29h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	00000000h to FFFFFFFFh	—	Impossible	—

Description

The friction failure prediction status is returned.
[Bit 0 to 3: Friction failure prediction status]
0: Friction failure prediction disabled
1: During preparation for friction failure prediction
2: During execution of friction failure prediction
3: During friction failure prediction warning
[Bit 4 to 7: Vibration failure prediction status]
0: Vibration failure prediction disabled
1: During preparation for vibration failure prediction
2: During execution of vibration failure prediction
3: During vibration failure prediction warning
[Bit 8 to 11: Total travel distance failure prediction status]
0: Motor total travel distance failure prediction disabled
1: Motor total travel distance failure prediction being executed
2: Motor total travel distance failure prediction at warning
[Bit 12 to 15: Motor total travel distance calculation status]
0: During stop of motor total travel distance calculation
1: During calculation of motor total travel distance
[Bit 16 to 19: reserved]
[Bit 20 to 23: Static friction failure prediction status]
0: Static friction failure prediction disabled
1: During preparation for static friction failure prediction
2: During execution of static friction failure prediction
3: During static friction failure prediction warning
[Bit 24 to 27: Belt tension deterioration prediction status]
0: Belt tension deterioration prediction disabled
1: Belt tension deterioration prediction in progress
2: During belt tension deterioration warning
[Bit 28 to 31: Belt tension estimation status]
0: Belt tension estimation in progress
1: Belt tension estimation has finished
7: Belt tension estimation is not set

8.17 [Friction based fault prediction upper threshold (Obj. 2C2Ah)]

[Friction based fault prediction upper threshold (Obj. 2C2Ah: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	Impossible	—	-2147483648 to 2147483647	0.1 %	Impossible	—

Description

The upper limit threshold for friction failure prediction is returned.

8.18 [Friction based fault prediction lower threshold (Obj. 2C2Bh)]

[Friction based fault prediction lower threshold (Obj. 2C2Bh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	Impossible	—	-2147483648 to 2147483647	0.1 %	Impossible	—

Description

The lower limit threshold for friction failure prediction is returned.

8.19 [Friction based fault prediction prepare status (Obj. 2C2Ch)]

[Friction based fault prediction prepare status (Obj. 2C2Ch: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	Impossible	—	0 to 100	%	Impossible	—

Description

The preparation progress for friction failure prediction is returned.

8.20 [Vibration based fault prediction threshold (Obj. 2C2Dh)]

[Vibration based fault prediction threshold (Obj. 2C2Dh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	Impossible	—	-2147483648 to 2147483647	0.1 %	Impossible	—

Description

The threshold for vibration failure prediction is returned.

8.21 [Vibration based fault prediction prepare status (Obj. 2C2Eh)]

[Vibration based fault prediction prepare status (Obj. 2C2Eh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	Impossible	—	0 to 100	%	Impossible	—

Description

The preparation progress for vibration failure prediction is returned.

8.22 [Machine total distance (Obj. 2C2Fh)]

[Machine total distance (Obj. 2C2Fh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	00000000h to FFFFFFFFh	rev m	Impossible	—

Description

The machine total travel distance is returned.

8.23 [Friction estimate status (Obj. 2C31h)]

[Friction estimate status (Obj. 2C31h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0 to 100	%	Impossible	—

Description

The progress of friction estimation is returned.

8.24 [Backlash estimation value (Obj. 2C32h)]

[Backlash estimation value (Obj. 2C32h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	0 to 3600000	0.01 degree	Impossible	—

Description

The result of backlash estimation is returned. When the backlash estimated gear ratio numerator or the backlash estimated gear ratio denominator is set to "0", the backlash estimation amount is returned as the rotation angle on the servo motor side. When the backlash estimated gear ratio is set to a value other than "0", the backlash estimated amount is returned as a value that takes into account the backlash estimated gear ratio.

8.25 [Static friction based fault prediction upper threshold (Obj. 2C33h)]

[Static friction based fault prediction upper threshold (Obj. 2C33h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	Impossible	—	-2147483648 to 2147483647	0.1 %	Impossible	—

Description

The upper limit threshold used for static friction failure prediction is displayed in increments of 0.1 % in relation to the rated torque as 100 %.

8.26 [Static friction based fault prediction lower threshold (Obj. 2C34h)]

[Static friction based fault prediction lower threshold (Obj. 2C34h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	Impossible	—	-2147483648 to 2147483647	0.1 %	Impossible	—

The lower limit threshold used for static friction failure prediction is displayed in increments of 0.1 % in relation to the rated torque as 100 %.

8.27 [Static friction based fault prediction prepare status (Obj. 2C35h)]

[Static friction based fault prediction prepare status (Obj. 2C35h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	Impossible	—	0 to 100	%	Impossible	—

The creation progress of the thresholds used in static friction failure prediction is displayed as a percentage. Creation of friction failure prediction for the upper and lower limit threshold finishes at 100 %.

8.28 [Tension estimation value (Obj. 2C36h)]

[Tension estimation value (Obj. 2C36h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	Impossible	—	-2147483648 to 2147483647	0.1 N	Impossible	—

The estimated tension value used by the belt tension deterioration function is expressed in 0.1 N units.

8.29 [Phase current (Obj. 2C37h)]

[Phase current (Obj. 2C37h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	—	3 (fixed)	—	Impossible	—

Description

The total number of Sub Indexes (= 3) is returned.

[U phase current (Obj. 2C37h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	-32768 to 32767	0.1 %	Impossible	—

Description

The U-phase current value is displayed in increments of 0.1 % in relation to the rated current as 100 %.

[V phase current (Obj. 2C37h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	-32768 to 32767	0.1 %	Impossible	—

Description

The V-phase current value is displayed in increments of 0.1 % in relation to the rated current as 100 %.

[W phase current (Obj. 2C37h: 03h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	-32768 to 32767	0.1 %	Impossible	—

Description

The W-phase current value is displayed in increments of 0.1 % in relation to the rated current as 100 %.

8.30 [Supported Control DI (Obj. 2D00h)]

[Supported Control DI (Obj. 2D00h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	10	10 (fixed)	—	Impossible	—

Description

The number of supported Control DI is returned.

[Supported Control DI 1 (Obj. 2D00h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Control DI 2 (Obj. 2D00h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Control DI 3 (Obj. 2D00h: 03h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Control DI 4 (Obj. 2D00h: 04h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Control DI 5 (Obj. 2D00h: 05h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Control DI 6 (Obj. 2D00h: 06h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Control DI 7 (Obj. 2D00h: 07h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Control DI 8 (Obj. 2D00h: 08h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Control DI 9 (Obj. 2D00h: 09h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Control DI 10 (Obj. 2D00h: 0Ah)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported input device is returned. When the input device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.31 [Control DI 1 (Obj. 2D01h)]

[Control DI 1 (Obj. 2D01h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The input device status is returned and set. Refer to the following for details.

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.32 [Control DI 2 (Obj. 2D02h)]

[Control DI 2 (Obj. 2D02h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The input device status is returned and set. Refer to the following for details.

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.33 [Control DI 3 (Obj. 2D03h)]

[Control DI 3 (Obj. 2D03h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The input device status is returned and set. Refer to the following for details.

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.34 [Control DI 4 (Obj. 2D04h)]

[Control DI 4 (Obj. 2D04h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The input device status is returned and set. Refer to the following for details.

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.35 [Control DI 5 (Obj. 2D05h)]

[Control DI 5 (Obj. 2D05h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The input device status is returned and set. Refer to the following for details.

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.36 [Control DI 6 (Obj. 2D06h)]

[Control DI 6 (Obj. 2D06h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The input device status is returned and set. Refer to the following for details.

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.37 [Control DI 7 (Obj. 2D07h)]

[Control DI 7 (Obj. 2D07h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The input device status is returned and set. Refer to the following for details.

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.38 [Control DI 8 (Obj. 2D08h)]

[Control DI 8 (Obj. 2D08h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The input device status is returned and set. Refer to the following for details.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.39 [Control DI 9 (Obj. 2D09h)]

[Control DI 9 (Obj. 2D09h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The input device status is returned and set. Refer to the following for details.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.40 [Control DI 10 (Obj. 2D0Ah)]

[Control DI 10 (Obj. 2D0Ah: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The input device status is returned and set. Refer to the following for details.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.41 [Supported Status DO (Obj. 2D10h)]

[Supported Status DO (Obj. 2D10h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	10	10 (fixed)	—	Impossible	—

Description

The number of supported Status DO is returned.

[Supported Status DO 1 (Obj. 2D10h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Status DO 2 (Obj. 2D10h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Status DO 3 (Obj. 2D10h: 03h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Status DO 4 (Obj. 2D10h: 04h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Status DO 5 (Obj. 2D10h: 05h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Status DO 6 (Obj. 2D10h: 06h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Status DO 7 (Obj. 2D10h: 07h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Status DO 8 (Obj. 2D10h: 08h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Status DO 9 (Obj. 2D10h: 09h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

[Supported Status DO 10 (Obj. 2D10h: 0Ah)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	0000h to FFFFh	—	Impossible	—

Description

The supported output device is returned. When the output device is supported, the corresponding bit becomes 1. For details of each bit, refer to the following.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.42 [Status DO 1 (Obj. 2D11h)]

[Status DO 1 (Obj. 2D11h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The output device status is returned. Refer to the following for details.

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.43 [Status DO 2 (Obj. 2D12h)]

[Status DO 2 (Obj. 2D12h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The output device status is returned. Refer to the following for details.

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.44 [Status DO 3 (Obj. 2D13h)]

[Status DO 3 (Obj. 2D13h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The output device status is returned. Refer to the following for details.

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.45 [Status DO 4 (Obj. 2D14h)]

[Status DO 4 (Obj. 2D14h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The output device status is returned. Refer to the following for details.

MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.46 [Status DO 5 (Obj. 2D15h)]

[Status DO 5 (Obj. 2D15h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The output device status is returned. Refer to the following for details.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.47 [Status DO 6 (Obj. 2D16h)]

[Status DO 6 (Obj. 2D16h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The output device status is returned. Refer to the following for details.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.48 [Status DO 7 (Obj. 2D17h)]

[Status DO 7 (Obj. 2D17h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The output device status is returned. Refer to the following for details.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.49 [Status DO 8 (Obj. 2D18h)]

[Status DO 8 (Obj. 2D18h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The output device status is returned. Refer to the following for details.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.50 [Status DO 9 (Obj. 2D19h)]

[Status DO 9 (Obj. 2D19h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The output device status is returned. Refer to the following for details.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.51 [Status DO 10 (Obj. 2D1Ah)]

[Status DO 10 (Obj. 2D1Ah: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The output device status is returned. Refer to the following for details.

📖MR-J5-G-N1/MR-J5W-G-N1 User's Manual (Communication Function)

8.52 [Velocity limit value (Obj. 2D20h)]

[Velocity limit value (Obj. 2D20h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	Refer to the following.	0 to 4294967295	vel units	Possible	Refer to the following.

Description

Set the speed limit value of the cyclic synchronous torque mode (csv) and the profile torque mode (tq).

The input value will be clamped at the servo motor maximum speed. When changing the speed to the permissible speed, set the speed in [Pr. PA28.4 Speed range limit selection].

The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Default	Units	Parameter
—	0 (encoder unit)	Rotary servo motor	300000	0.01 r/min	[Pr. PT67]
		Linear servo motor		0.01 mm/s	
2 (degree)	1 (command unit)	—	2147483647	0.001 degree/s	[Pr. PV21]
3 (pulse)				pulse/s	

8.53 [Motor rated speed (Obj. 2D28h)]

[Motor rated speed (Obj. 2D28h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	0 to 4294967295	Refer to the following.	Impossible	—

Description

The servo motor rated speed is returned. The unit of the returned data varies depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Units
—	0 (encoder unit)	Rotary servo motor	r/min
		Linear servo motor	mm/s
2 (degree)	1 (command unit)	—	0.001 degree/s
3 (pulse)			pulse/s

8.54 [Manufacturer Device Name 2 (Obj. 2D30h)]

[Manufacturer Device Name 2 (Obj. 2D30h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
VISIBLE STRING	RO	Impossible	—	—	—	Impossible	—

Description

The model name including the capacity of the servo amplifier (Example: MR-J5-10G-N1) is returned.

8.55 [Serial Number 2 (Obj. 2D33h)]

[Serial Number 2 (Obj. 2D33h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
VISIBLE STRING	RO	Impossible	—	—	—	Impossible	—

Description

The serial number of the servo amplifier is returned.

8.56 [Encoder status (Obj. 2D35h)]

[Encoder status (Obj. 2D35h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	2	2 (fixed)	—	Impossible	—

Description

The number of entries of the encoder status is returned.

[Encoder status 1 (Obj. 2D35h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	00000000h to 00000001h	—	Impossible	—

Description

The encoder status is returned. In a fully closed loop system, the external encoder status is returned.

Bit	Description
0	The encoder status is returned by the servo amplifier and confirms whether it is an absolute position detection system. 0: Incremental system 1: Absolute position detection system
1 to 31	—

[Encoder status 2 (Obj. 2D35h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	00000000h to 00000007h	—	Impossible	—

Description

The status of the scale measurement encoder is returned.

When the scale measurement mode is disabled, "0" is returned.

Bit	Description
0	The encoder status is returned by the servo amplifier and confirms whether it is an absolute position detection system. 0: Incremental system 1: Absolute position detection system
1	The encoder status is returned by the servo amplifier and confirms whether the scale measurement function is enabled or disabled. 0: Disabled 1: Enabled
2	The encoder status is returned by the servo amplifier and confirms whether the currently connected scale measurement encoder is an absolute position type. 0: Incremental type 1: Absolute position type
3 to 31	—

8.57 [Scale cycle counter (Obj. 2D36h)]

[Scale cycle counter (Obj. 2D36h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	TxPDO	—	0 to 4294967295	pulse	Impossible	—

Description

The position within one-revolution of the scale measurement encoder is returned. The description varies depending on the scale measurement encoder type.

When the scale measurement encoder is disabled, "0" is returned.

Scale measurement encoder	Description
Rotary encoder	Cycle counter
Linear encoder absolute position type	ABS counter
Linear encoder incremental type	Scale free-run counter
Linear encoder A/B/Z-phase differential output type Incremental type	Scale free-run counter
Rotary encoder A/B/Z-phase differential output type Incremental type	Cycle counter

8.58 [Scale ABS counter (Obj. 2D37h)]

[Scale ABS counter (Obj. 2D37h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	-2147483648 to 2147483647	rev	Impossible	—

Description

The ABS counter of the scale measurement encoder is returned. The description varies depending on the scale measurement encoder type.

When the scale measurement encoder is disabled, "0" is returned.

Scale measurement encoder	Description
Rotary encoder	Multi-revolution ABS counter
Linear encoder absolute position type	Fixed to 0
Linear encoder incremental type	Fixed to 0
Linear encoder A/B/Z-phase differential output type Incremental type	Fixed to 0
Rotary encoder A/B/Z-phase differential output type Incremental type	Fixed to 0

8.59 [Scale measurement encoder resolution (Obj. 2D38h)]

[Scale measurement encoder resolution (Obj. 2D38h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	0 to 4294967295	inc/rev	Impossible	—

Description

The resolution of the scale measurement encoder is returned.

When the scale measurement encoder is disabled, "0" is returned.

Scale measurement encoder	Description
Rotary encoder	Encoder resolution
Linear encoder absolute position type	Fixed to 0
Linear encoder incremental type	Fixed to 0
Linear encoder A/B/Z-phase differential output type Incremental type	Fixed to 0
Rotary encoder A/B/Z-phase differential output type Incremental type	Encoder resolution

8.60 [Scale measurement encoder reception status (Obj. 2D3Ch)]

[Scale measurement encoder reception status (Obj. 2D3Ch: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	TxPDO	—	00000000h to FFFFFFFFh	—	Impossible	—

Description

The alarm data of the scale measurement encoder is returned.

When the scale measurement encoder is disabled, "0" is returned.

0: Normal

Other than 0: Error

8.61 [Servo motor serial number (Obj. 2D46h)]

[Servo motor serial number (Obj. 2D46h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
VISIBLE STRING	RO	Impossible	—	—	—	Impossible	—

Description

The serial number of the servo motor is returned.

When the serial number cannot be read, an empty value is returned.

8.62 [Motor data 2 (Obj. 2D48h)]

[Motor data 2 (Obj. 2D48h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	00h	00h to 04h	—	Impossible	—

Description

The number of entries is returned.

[Motor ID 1 (Obj. 2D48h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	—	—	Impossible	—

Description

The servo motor series ID is returned.

When an encoder is not connected, "00000000h" is returned.

For the correspondence between ID codes and servo motor models, refer to "Rotary servo motor ID codes" in the following manual.

📖Rotary Servo Motor User's Manual (HK series)

[Motor ID 2 (Obj. 2D48h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	—	—	Impossible	—

Description

The servo motor type ID is returned.

When an encoder is not connected, "00000000h" is returned.

For the correspondence between ID codes and servo motor models, refer to "Rotary servo motor ID codes" in the following manual.

📖Rotary Servo Motor User's Manual (HK series)

[Encoder ID 1 (Obj. 2D48h: 03h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	—	—	Impossible	—

Description

The encoder ID is returned.

When an encoder is not connected, "00000000h" is returned.

For the correspondence between ID codes and servo motor models, refer to "Rotary servo motor ID codes" in the following manual.

📖Rotary Servo Motor User's Manual (HK series)

[Encoder ID 2 (Obj. 2D48h: 04h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	Impossible	—	—	—	Impossible	—

Description

The value for manufacturer setting is returned.

8.63 [One-touch tuning mode (Obj. 2D50h)]

[One-touch tuning mode (Obj. 2D50h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RW	Impossible	00h	00h to 03h	—	Impossible	—

Description

One-touch tuning command is returned and set. After one-touch tuning, the setting value automatically changes to "0".

0: One-touch tuning stop in progress

1: Basic mode

2: High mode

3: Low mode

8.64 [One-touch tuning status (Obj. 2D51h)]

[One-touch tuning status (Obj. 2D51h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I8	RO	Impossible	—	0 to 100	%	Impossible	—

Description

The one-touch tuning progress is returned. Regardless of whether one-touch tuning is properly completed or not, "100" is returned at the completion.

8.65 [One-touch tuning Stop (Obj. 2D52h)]

[One-touch tuning Stop (Obj. 2D52h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	0000h	0000h, 1EA5h	—	Impossible	—

Description

Set a one-touch tuning stop command. To check whether the setting is reflected, read [One-touch tuning mode (Obj. 2D50h)].

- 1EA5h: Stops one-touch tuning.
- Other than 1EA5h: Triggers a parameter out of range error.

When the object is read, whether one-touch tuning can be stopped is returned.

Bit	Description
0	0: One-touch tuning can be stopped with the command. (One-touch tuning in progress) 1: One-touch tuning cannot be stopped with the command. (One-touch tuning not in progress)
1 to 31	—

8.66 [One-touch tuning Clear (Obj. 2D53h)]

[One-touch tuning Clear (Obj. 2D53h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	0000h	0000h to 0001h	—	Impossible	—

Description

The servo parameter that was changed in one-touch tuning is returned to the value before the change. To check whether the setting is reflected, read [One-touch tuning mode (Obj. 2D50h)].

- 0000h: Restores to factory setting
- 0001h: Restores to the value from before one-touch tuning

When the object is read, whether the servo parameter that changed in one-touch tuning can be restored to the value before the change is returned.

Bit	Description
0	0: Cannot be restored to factory setting with the command. (One-touch tuning in progress) 1: Can be restored to factory setting with the command. (One-touch tuning not in progress)
1	0: Cannot be restored to the value before one-touch tuning with the command. (One-touch tuning has not been performed for the axis, one-touch tuning is in progress for the axis, or an incorrect axis was selected.) 1: Can be restored to the value before one-touch tuning with the command. (One-touch tuning executed)
2 to 31	—

8.67 [One-touch tuning Error Code (Obj. 2D54h)]

[One-touch tuning Error Code (Obj. 2D54h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	Impossible	—	Refer to the following.	—	Impossible	—

Description

An error code of the one-touch tuning is returned.

Refer to "One-touch tuning error" in the following manual.

📖MR-J5 User's Manual (Adjustment)

0000h: Properly completed

C000h: Tuning canceled

C_01h: Overshoot exceeded

C_02h: Servo-off during tuning

C_03h: Control mode error

C_04h: Time-out

C_05h: Load inertia moment ratio misestimated

C_06h: Servo amplifier built-in command start error

C_07h: Servo amplifier built-in command generation error

C_08h: Stop signal

C_09h: Parameter

C_0Ah: Alarm

C00Fh: One-touch tuning disabled

9 PDS Control Objects

9.1 [Error code (Obj. 603Fh)]

[Error code (Obj. 603Fh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

The No. of the latest error which occurred after power-on is returned.

Ex.
When [AL. 118.1 Encoder communication circuit diagnosis in progress] occurs, "0118h" is returned.

9.2 [Controlword (Obj. 6040h)]

[Controlword (Obj. 6040h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	0000h	0000h to FFFFh	—	Impossible	—

Description

PDS status switching command is given, or control commands are returned and set.

Use bit 0 to bit 3 and bit 7 in the PDS status transition.

Bit	Name	Description
0	SO	Switch-on
1	EV	Enable voltage
2	QS	Quick stop
3	EO	Enable operation
4	OMS	Differs depending on the value of [Modes of operation (Obj. 6060h)]. Refer to the following for details. ☞ Page 92 [Bit 4: OMS]
5	OMS	Differs depending on the value of [Modes of operation]. Refer to the following for details. ☞ Page 92 [Bit 5: OMS]
6	OMS	Differs depending on the value of [Modes of operation]. Refer to the following for details. ☞ Page 92 [Bit 6: OMS]
7	FR	Fault reset
8	HALT	0: Operation ready 1: Pauses the operation according to [Halt option code (Obj. 6050h)]. Refer to the following for details. ☞ Page 92 [Bit 8: OMS]
9	OMS	Differs depending on the value of [Modes of operation]. Refer to the following for details. ☞ Page 92 [Bit 9: OMS]
10	—	—
11	CPTL	Positive Torque Limit switching
12	CNTL	Negative Torque Limit switching
13	—	—
14		
15		

■[Bit 4: OMS]

Setting value	Symbol	Description
1 (pp)	New set-point	Obtains a new positioning parameter at bit rising
3 (pv)	—	—
4 (tq)		
6 (hm)	HOS	Homing operation start 0: Do not start homing procedure 1: Start or continue homing procedure
8 (csp)	—	—
9 (csv)		
10 (cst)		

■[Bit 5: OMS]

Setting value	Symbol	Description
1 (pp)	Change set immediately	0: Set of set-points 1: Single set-point
3 (pv)	—	—
4 (tq)		
6 (hm)		
8 (csp)		
9 (csv)		
10 (cst)		

■[Bit 6: OMS]

Setting value	Symbol	Description
1 (pp)	abs/rel	0: Absolute position command 1: Relative position command
3 (pv)	—	—
4 (tq)		
6 (hm)		
8 (csp)		
9 (csv)		
10 (cst)		

■[Bit 8: OMS]

Setting value	Symbol	Description
1 (pp)	HALT	0: The servo motor is driven. 1: The servo motor is stopped according to [Halt option code (Obj. 605Dh)].
3 (pv)		
4 (tq)		
6 (hm)		
8 (csp)	—	—
9 (csv)		
10 (cst)		

■[Bit 9: OMS]

Setting value	Symbol	Description
1 (pp)	Change on set-point	Enabled only in Set of set-points (when the bit 5 of [Obj. 6040h: 00h] is "0"). 0: Shifts to the next positioning after completing the current positioning. 1: Shifts to the next positioning after performing positioning up to the current set-point with the setting of [profile velocity (Obj. 6081h)].
3 (pv)	—	—
4 (tq)		
6 (hm)		
8 (csp)		
9 (csv)		
10 (cst)		

9.3 [Statusword (Obj. 6041h)]

[Statusword (Obj. 6041h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	—	0000h to FFFFh	—	Impossible	—

Description

The PDS status transition and other drive conditions are returned.

Bit	Symbol	Description
0	RTSO	Ready-to-switch-on
1	SO	Switch-on
2	OE	Operation-enabled
3	F	Fault
4	VE	Voltage-enabled 0: The bus voltage is lower than the specified (RA) level. 1: The bus voltage is equal to or higher than the specified level.
5	QS	Quick stop When [Pr. PF29.1 State selection with forced stop in progress] is set to "1" (Quick stop active), the value of this bit changes to "0" during a forced stop. 0: In a Quick stop 1: Not in a Quick stop (including in the test mode)
6	SOD	Switch on disabled
7	W	Warning 0: No warning has occurred. 1: A warning has occurred.
8	—	—
9	RM	Remote 0: Not following the Controlword 1: In operation following the Controlword
10	OMS	Differs depending on the value of [Modes of operation (Obj. 6060h)]. Refer to the following for details. ☞ Page 94 [Bit 10: OMS]
11	ILA	Internal limit active 0: The forward rotation stroke end, reverse rotation stroke end, and software position limit have not been reached. 1: The forward rotation stroke end, reverse rotation stroke end, or software position limit has been reached. (Enabled in the csp, csv, pp, pv, and hm mode)
12	OMS	Differs depending on the value of [Modes of operation (Obj. 6060h)]. Refer to the following for details. ☞ Page 94 [Bit 12: OMS]
13	OMS	Differs depending on the value of [Modes of operation (Obj. 6060h)]. Refer to the following for details. ☞ Page 95 [Bit 13: OMS]
14	—	—
15	—	—

■[Bit 10: OMS]

Setting value	Name	Description
1 (pp)	Target reached	0: Halt (Bit8) = 0: Target position not reached. 0: Halt (Bit8) = 1: Axis decelerates. 1: Halt (Bit8) = 0: Target position reached. 1: Halt (Bit8) = 1: Velocity of axis is 0. Judgment condition of Target position reached: When the time set in [Position window time (Obj. 6068h)] elapses in a state where the difference between the values in [Position actual value (Obj. 6064h)] and [Target position (Obj. 607Ah)] is equal to or below the value set in [Position window (Obj. 6067h)], the state becomes "Target position reached".
3 (pv)		0: Halt (Bit8) = 0: Target velocity not reached. 0: Halt (Bit8) = 1: Axis decelerates. 1: Halt (Bit8) = 0: Target velocity reached. 1: Halt (Bit8) = 1: Velocity of axis is 0. Judgment condition of Target velocity reached: When the time set in [Velocity window time (Obj. 606Eh)] elapses in a state where the difference between the values in [Velocity actual value (Obj. 606Ch)] and [Target velocity (Obj. 60FFh)] is equal to or below the value set in [Velocity window (Obj. 606Dh)], the state becomes "Target velocity reached".
4 (tq)	Target reached (not supported)	0: Halt (Bit8) = 0: Target torque not reached. 0: Halt (Bit8) = 1: Axis decelerates. 1: Halt (Bit8) = 0: Target torque reached. 1: Halt (Bit8) = 1: Velocity of axis is 0. Judgment condition of Target torque reached: When the time set in [Torque window time] elapses in a state where the difference between the values in [Torque actual value (Obj. 6077h)] and [Target torque (Obj. 6071h)] is equal to or below the value set in [Torque window], the state becomes "Target torque reached".
6 (hm)	Target reached	Bit 13 off/bit 12 off/bit 10 off: Homing procedure is in progress. Bit 13 off/bit 12 off/bit 10 on: Homing procedure is interrupted or not started. Bit 13 off/bit 12 on/bit 10 off: Homing is attained, but target is not reached. Bit 13 off/bit 12 on/bit 10 on: Homing procedure is completed successfully. Bit 13 on/bit 12 off/bit 10 off: Homing error occurred, velocity is not 0. Bit 13 on/bit 12 off/bit 10 on: Homing error occurred, velocity is 0. Bit 13 on/bit 12 on/bit 10 off: -
8 (csp)	—	—
9 (csv)		
10 (cst)		

■[Bit 12: OMS]

Setting value	Name	Description
1 (pp)	Set-point acknowledge	0: Positioning completed (waiting for next command) 1: Positioning in progress (possible to overwrite a setpoint)
3 (pv)	Speed	0: Speed is not equal 0 1: Speed is equal 0 Judgment condition of Speed is not equal 0: When the time set in [Velocity threshold time (Obj. 6070h)] elapses in a state where the absolute value of [Velocity actual value (Obj. 606Ch)] is equal to or above the setting value of [Velocity threshold (Obj. 606Fh)], the bit becomes "Speed is not equal 0".
4 (tq)	—	—
6 (hm)	Homing attained	Refer to the following. ☞ Page 94 [Bit 10: OMS]
8 (csp)	Drive follows the command value	0: [Target position (Obj. 607Ah)] is being discarded. 1: [Target position (Obj. 607Ah)] is being used as a position control loop input.
9 (csv)		0: [Target velocity (Obj. 60FFh)] is being discarded. 1: [Target velocity (Obj. 60FFh)] is being used as a speed control loop input.
10 (cst)		0: [Target torque (Obj. 6071h)] is being discarded. 1: [Target torque (Obj. 6071h)] is being used as a torque control loop input.

■[Bit 13: OMS]

Setting value	Name	Description
1 (pp)	Following error	0: No following error 1: Following error
3 (pv)	Max slippage error	0: Maximum slippage not reached 1: Maximum slippage reached (not supported) Max slippage is the maximum slippage of the asynchronous servo motor.
4 (tq)	—	—
6 (hm)	Homing error	Refer to the following. ☞ Page 94 [Bit 10: OMS]
8 (csp)	Following error	0: No following error 1: Following error When the time set in [Following error time out (Obj. 6066h)] elapses in a state where the value of [Following error actual value (Obj. 60F4h)] exceeds the value set in [Following error window (Obj. 6065h)], this bit becomes "1".
9 (csv)	—	—
10 (cst)		

9.4 [Quick stop option code (Obj. 605Ah)]

[Quick stop option code (Obj. 605Ah: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RW	Impossible	2	2 (fixed)	—	Possible	[Pr. PT68.0]

Description

Set how to decelerate the servo motor to a stop at Quick Stop reception.

Setting value	Description
0 (not supported)	—
1 (not supported)	
2	In the cyclic synchronous positioning/velocity mode (csp/csv), profile positioning/velocity mode (pp/pv), and homing mode (hm), the servo motor decelerates to a stop with [Quick stop deceleration (Obj. 6085h)] and the state shifts to "Switch On Disabled". In the cyclic synchronous torque mode (cst) and the profile torque mode (tq), the state immediately shifts to "Switch On Disabled" and the servo motor stops with the dynamic brake.
3 (not supported)	—
4 (not supported)	
5 (not supported)	
6 (not supported)	
7 (not supported)	
8 (not supported)	

9.5 [Halt option code (Obj. 605Dh)]

[Halt option code (Obj. 605Dh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RW	Impossible	1	1 (fixed)	—	Possible	[Pr. PT68.2]

Description

Set how to decelerate the servo motor to a stop at Halt reception.

Setting value	Description
0	—
1	The servo motor decelerates to a stop in accordance with [Profile deceleration (Obj. 6084h)] during the profile positioning/velocity mode (pp/pv) and in accordance with [Homing acceleration (Obj. 609Ah)] during the homing mode (hm), and the servo motor remains "Operation Enabled". During the profile torque mode (tq), [Torque demand value (Obj. 6074h)] becomes "0" stopping the servo motor in accordance with the amount of torque change set in [Torque slope (Obj. 6087h)], and the state remains "Operation Enabled".
2 (not supported)	—
3 (not supported)	
4 (not supported)	

The following shows the case where Halt Bit (Bit 8 of [Controlword (Obj. 6040h)]) is set to "1" and "0", and the reflective timing of the deceleration time setting in each control mode.

Control mode	Halt Bit is set to "1"	Halt Bit is set to "0"	Reflective timing of deceleration time setting
Profile position mode (pp)	The servo motor decelerates to a stop in accordance with [Profile deceleration (Obj. 6084h)].	The operation resumes after decelerating to a stop.	Reflected when New set-point (bit 4 of [Controlword (Obj. 6040h)]) is set to "1".
Profile velocity mode (pv)	The servo motor decelerates to a stop in accordance with [Profile deceleration (Obj. 6084h)].	The operation resumes after decelerating to a stop.	Reflected constantly.
Profile torque mode (tq)	[Torque demand value (Obj. 6074h)] becomes "0" stopping the servo motor in accordance with the amount of torque change set in [Torque slope (Obj. 6087h)].	The operation resumes after [Torque demand value (Obj. 6074h)] changes to "0".	Reflected constantly.
Homing mode (hm)	When Halt Bit is set to "1", the servo motor decelerates to a stop with [Homing acceleration (Obj. 609Ah)], and the status remains as "Operation Enabled (servo-on)". Then, homing is restarted with the following procedure: (1) set Halt Bit to "0", (2) reset Homing Operation Start (Bit 4 of [Controlword (Obj. 6040h)]) to "0", and (3) change Homing Operation Start (Bit 4 of [Controlword (Obj. 6040h)]) to "1".		Reflected when "Homing Operation Start" is set to "1".

9.6 [Modes of operation (Obj. 6060h)]

[Modes of operation (Obj. 6060h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I8	RW	RxPDO	0	Refer to the following.	—	Impossible	—

Description

Set a control mode.

Setting value	Description
0	No mode change/No mode assigned
1	Profile position mode (pp)
2	—
3	Profile velocity mode (pv)
4	Profile torque mode (tq)
5	—
6	Homing mode (hm)
7	—
8	Cyclic synchronous position mode (csp)
9	Cyclic synchronous velocity mode (csv)
10	Cyclic synchronous torque mode (cst)
-101	For manufacturer setting

9.7 [Modes of operation display (Obj. 6061h)]

[Modes of operation display (Obj. 6061h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I8	RO	TxPDO	—	Refer to the following.	—	Impossible	—

Description

The current control mode is returned.

Setting value	Description
0	No mode change/No mode assigned
1	Profile position mode (pp)
2	—
3	Profile velocity mode (pv)
4	Profile torque mode (tq)
5	—
6	Homing mode (hm)
7	—
8	Cyclic synchronous position mode (csp)
9	Cyclic synchronous velocity mode (csv)
10	Cyclic synchronous torque mode (cst)
-1	Test Operation mode: JOG Operation
-2	Test Operation mode: Positioning Operation
-4	Test Operation mode: DO forced output
-6	Test Operation mode: Machine analyzer
-9	Test Operation mode: Test Exit
-10	For manufacturer setting
-101	For manufacturer setting

9.8 [Supported drive modes (Obj. 6502h)]

[Supported drive modes (Obj. 6502h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	TxPDO	—	—	—	Impossible	—

Description

The supported control mode is returned. The available control modes vary depending on the setting of [Pr. PA01.0 Control mode selection] and the network settings.

Bit	Description	Defined value
0	Profile position mode (pp)	1: Supported
1	Velocity mode (vl)	0
2	Profile velocity mode (pv)	1: Supported *1
3	Profile torque mode (tq)	1: Supported *1
4	Reserved	0
5	Homing mode (hm)	1: Supported
6	Interpolated position mode (ip)	0
7	Cyclic synchronous position mode (csp)	1: Supported
8	Cyclic synchronous velocity mode (csv)	1: Supported
9	Cyclic synchronous torque mode (cst)	1: Supported
10	Cyclic synchronous torque mode with communication angle (cstca)	0
11 to 16	Reserved	0
17	For manufacturer setting	1: Supported
18 to 31	Reserved	0

*1 For the MR-J5W_-_G-N1 servo amplifiers, the defined value is "0".

10 Position Control Function Objects

10.1 [Position demand value (Obj. 6062h)]

[Position demand value (Obj. 6062h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	-2147483648 to 2147483647	pos units	Impossible	—

Description

The command position inside the servo amplifier is returned.

10.2 [Position actual internal value (Obj. 6063h)]

[Position actual internal value (Obj. 6063h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	-2147483648 to 2147483647	inc	Impossible	—

Description

The current position is returned.

10.3 [Position actual value (Obj. 6064h)]

[Position actual value (Obj. 6064h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	-2147483648 to 2147483647	pos units	Impossible	—

Description

The current position of the command unit is returned.

10.4 [Following error window (Obj. 6065h)]

[Following error window (Obj. 6065h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	00C00000h	00000000h to FFFFFFFFh	pos units	Possible	[Pr. PC67]

Description

In the cyclic synchronous position mode (csp) and in the profile position mode (pp), when the time set with [Following error time out (Obj. 6066h)] has elapsed with the number of droop pulses exceeding the setting value of this object, bit 13 of [Statusword (Obj. 6041h)] is turned on. When the setting value of this object is "FFFFFFFFh", bit 13 of [Statusword] is always off.

10.5 [Following error time out (Obj. 6066h)]

[Following error time out (Obj. 6066h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	10	0 to 65535	ms	Possible	[Pr. PC69]

Description

Refer to the following object.

☞ Page 100 [Following error window (Obj. 6065h)]

10.6 [Position window (Obj. 6067h)]

[Position window (Obj. 6067h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	400	—	pos units	Possible	[Pr. PC70]

Description

The descriptions of this object is as follows.

Setting value	Description
00000000h to FFFFFFFEh	In the profile position mode (pp), when the time set in [Position window time (Obj. 6068h)] elapses in a state where the number of droop pulses is equal to or below the setting value of this object, bit 10 of [Statusword (Obj. 6041h)] turns on.
FFFFFFFFh	In the profile position mode (pp), bit 10 of [Statusword (Obj. 6041h)] is always turned on.

10.7 [Position window time (Obj. 6068h)]

[Position window time (Obj. 6068h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	10	0 to 65535	ms	Possible	[Pr. PC71]

Description

Refer to the following object.

☞ Page 101 [Position window (Obj. 6067h)]

10.8 [Positioning option code (Obj. 60F2h)]

[Positioning option code (Obj. 60F2h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	0000h	0000h (fixed)	—	Possible	[Pr. PT03.2]

Description

Set the following conditions of the profile position mode (pp).

Bit	Description	Defined value
0 to 1	00b: Operates at the relative position determined by the internal absolute target position. 01b: Operates at the relative position determined by [Position demand actual value (Obj. 60FCh)]. (not supported) 10b: Operates at the relative position determined by [Position actual value (Obj. 6064h)]. (not supported) 11b: reserved	00b
2 to 3	00b: Immediately reflects new information including [Target position (Obj. 607Ah)], [Profile velocity (Obj. 6081h)], and Acceleration. 01b: Continues positioning, and reflects new information including [Target position (Obj. 607Ah)], [Profile velocity (Obj. 6081h)], and Acceleration when reaching the target position. (not supported) 10b: reserved 11b: reserved	00b
4 to 5	Reserved	0
6 to 7 (not supported)	00b: Rotates to the target position in the direction specified with the sign of the position data. 01b: Rotates in the address decreasing direction regardless of the sign of the position data. 10b: Rotates in the address increasing direction regardless of the sign of the position data. 11b: Rotates in the direction with the shorter distance from the current position to the target position. If the distance from the current position to the target position is the same in the CCW and CW directions, the servo motor rotates in the CCW direction.	00b
8 to 15	Reserved	0

10.9 [Following error actual value (Obj. 60F4h)]

[Following error actual value (Obj. 60F4h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	-2147483648 to 2147483647	pos units	Impossible	—

Description

The droop pulses are returned.

10.10 [Control effort (Obj. 60FAh)]

[Control effort (Obj. 60FAh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	-2147483648 to 2147483647	vel units	Impossible	—

Description

The speed command is returned. The unit of the returned data varies depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Units
—	0 (encoder unit)	Rotary servo motor	0.01 r/min
		Linear servo motor	0.01 mm/s
2 (degree)	1 (command unit) *1	—	0.001 degree/s
3 (pulse)			pulse/s

*1 When [Pr. PT01.1] is set to "1", the returned value may differ due to unit conversion.

11 Profile Velocity Mode Objects

11.1 [Velocity demand value (Obj. 606Bh)]

[Velocity demand value (Obj. 606Bh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	-2147483648 to 2147483647	vel units	Impossible	—

Description

The speed command is returned. The unit of the returned data varies depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Units
—	0 (encoder unit)	Rotary servo motor	0.01 r/min
		Linear servo motor	0.01 mm/s
2 (degree)	1 (command unit) *1	—	0.001 degree/s
3 (pulse)			pulse/s

*1 When [Pr. PT01.1] is set to "1", the returned value may differ due to unit conversion.

11.2 [Velocity actual value (Obj. 606Ch)]

[Velocity actual value (Obj. 606Ch: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	—	-2147483648 to 2147483647	vel units	Impossible	—

Description

The current speed is returned. The unit of the returned data varies depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Units
—	0 (encoder unit)	Rotary servo motor	0.01 r/min
		Linear servo motor	0.01 mm/s
2 (degree)	1 (command unit) *1	—	0.001 degree/s
3 (pulse)			pulse/s

*1 When [Pr. PT01.1] is set to "1", the returned value may differ due to unit conversion.

11.3 [Velocity window (Obj. 606Dh)]

[Velocity window (Obj. 606Dh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	Refer to the following.	0 to 65535	vel units	Possible	

Description

In the profile velocity mode (pv), when the time set in [Velocity window time (Obj. 606Eh)] elapses in a state where the difference between the command velocity and the current velocity is equal to or below the setting value of this object, bit 10 of [Statusword (Obj. 6041h)] turns on.

The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.1]	Connected servo motor	Default	Units	Parameter
0 (encoder unit)	Rotary servo motor	2000	0.01 r/min	[Pr. PC72]
	Linear servo motor		0.01 mm/s	
1 (command unit)	—	20000	pulse/s	[Pr. PV19]

11.4 [Velocity window time (Obj. 606Eh)]

[Velocity window time (Obj. 606Eh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	10	0 to 65535	ms	Possible	[Pr. PC73]

Description

Refer to the following object.

☞ Page 105 [Velocity window (Obj. 606Dh)]

11.5 [Velocity threshold (Obj. 606Fh)]

[Velocity threshold (Obj. 606Fh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	Refer to the following.	0 to 65535	vel units	Possible	Refer to the text

Description

In the profile velocity mode (pv), when the time set in [Velocity threshold time (Obj. 6070h)] elapses in a state where the current velocity is equal to or below the setting value of this object, bit 12 of [Statusword (Obj. 6041h)] turns on.

The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Default	Units	Parameter
—	0 (encoder unit)	Rotary servo motor	5000	0.01 r/min	[Pr. PC65]
		Linear servo motor		0.01 mm/s	
2 (degree)	1 (command unit)	—	20	0.001 degree/s	[Pr. PV20]
3 (pulse)				pulse/s	

11.6 [Velocity threshold time (Obj. 6070h)]

[Velocity threshold time (Obj. 6070h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	10	0 to 65535	ms	Possible	[Pr. PC66]

Description

Refer to the following object.

☞ Page 105 [Velocity threshold (Obj. 606Fh)]

11.7 [Target velocity (Obj. 60FFh)]

[Target velocity (Obj. 60FFh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	RxPDO	0	-2147483648 to 2147483647	vel units	Impossible	—

Description

Set the speed command used in the cyclic synchronous velocity mode (csv) and the profile velocity mode (pv). The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Units
—	0 (encoder unit)	Rotary servo motor	0.01 r/min
		Linear servo motor	0.01 mm/s
2 (degree)	1 (command unit)	—	0.001 degree/s
3 (pulse)			pulse/s

12 Profile Torque Mode Objects

12.1 [Positive/Negative torque limit 2 (Obj. 2D6Dh)]

[Positive/Negative torque limit 2 setting (Obj. 2D6Dh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	03h	03h (fixed)	—	Impossible	—

Description

The total number of Sub Indexes is returned.

[Positive/Negative torque limit 2 select (Obj. 2D6Dh: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	0000h	0000h to 0001h	—	Possible	[Pr. PC42]

Description

Select the torque limit. The description is as follows.

[Pr. PC42.0]/ [Positive/Negative torque limit 2 select (Obj. 2D6Dh: 01h)]	Forward rotation torque limit value		Reverse rotation torque limit value	
	CPTL: 0	CPTL: 1	CNTL: 0	CNTL: 1
0h/0000h	[Pr. PA11]/ [Positive torque limit value (Obj. 60E0h)]	[Pr. PA11]/ [Positive torque limit value (Obj. 60E0h)]	[Pr. PA12]/ [Negative torque limit value (Obj. 60E1h)]	[Pr. PA12]/ [Negative torque limit value (Obj. 60E1h)]
1h/0001h	[Pr. PA11]/ [Positive torque limit value (Obj. 60E0h)]	[Pr. PC43]/ [Positive torque limit value2 (Obj. 2D6Dh: 02h)]	[Pr. PA12]/ [Negative torque limit value (Obj. 60E1h)]	[Pr. PC44]/ [Negative torque limit value2 (Obj. 2D6Dh: 03h)]

[Positive torque limit value 2 (Obj. 2D6Dh: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	10000	0 to 10000	0.1 %	Possible	[Pr. PC43]/[Pr. PC44]

Description

The torque generated by the servo motor or the thrust generated by the linear servo motor can be limited. Set the limit value of the torque of the servo motor for CCW power running or CW regeneration, or the limit value of the thrust of the linear servo motor for positive direction power running or negative direction regeneration.

If this object is set to "0", the servo motor does not generate torque or thrust.

When POL is disabled, the value of [Pr. PC43 Forward rotation torque limit 2] will be set, and when POL is enabled, the value of [Pr. PC44 Reverse rotation torque limit 2] will be set.

[Negative torque limit value 2 (Obj. 2D6Dh: 03h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	Impossible	10000	0 to 10000	0.1 %	Possible	[Pr. PC43]/[Pr. PC44]

Description

The torque generated by the servo motor or the thrust generated by the linear servo motor can be limited. Set the limit value of the torque of the servo motor for CW power running or CCW regeneration, or the limit value of the thrust of the linear servo motor for negative direction power running or positive direction regeneration.
If this object is set to "0", the servo motor does not generate torque or thrust.
When POL is disabled, the value of [Pr. PC44 Reverse rotation torque limit 2] will be set, and when POL is enabled, the value of [Pr. PC43 Forward rotation torque limit 2] will be set.

12.2 [Target torque (Obj. 6071h)]

[Target torque (Obj. 6071h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RW	RxPDO	—	-32768 to 32767	0.1 %	Impossible	—

Description

Set the torque command used in the cyclic synchronous torque mode (cst) and the profile torque mode (tq).

12.3 [Max torque (Obj. 6072h)]

[Max torque (Obj. 6072h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	TxPDO/RxPDO	—	0 to 10000	0.1 %	Possible	[Pr. PE53]

Description

The maximum torque of the servo motor is returned.
When [Pr. PC78.1] is set to "0" (disabled), the torque limit with this object and the torque limit with the value of [Pr. PE53] will be disabled. The values notified by this object are the maximum current and feedback values and may not match the maximum torque described in "Rotary Servo Motor User's Manual (HK series)".
When [Pr. PC78.1] is set to "1" (enabled), the torque or thrust generated by the servo motor can be limited with the setting value of this object. When this object is set to "0", the torque limit is disabled.

12.4 [Torque demand value (Obj. 6074h)]

[Torque demand value (Obj. 6074h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	-32768 to 32767	0.1 %	Impossible	—

Description

The torque command is returned.

12.5 [Torque actual value (Obj. 6077h)]

[Torque actual value (Obj. 6077h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	-32768 to 32767	0.1 %	Impossible	—

Description

The current torque is returned.

12.6 [Current actual value (Obj. 6078h)]

[Current actual value (Obj. 6078h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RO	TxPDO	—	-32768 to 32767	0.1 %	Impossible	—

Description

The actual current value is returned.

Unit: 0.1 % (with rated current being 100 %)

The value is equivalent to [Torque actual value (Obj. 6077h)].

12.7 [Torque slope (Obj. 6087h)]

[Torque slope (Obj. 6087h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	0	0 to 10000000	0.1 %/s	Possible	[Pr. PT53]

Description

Set the amount of change in the torque command per second which is used in the profile torque mode. When "0" is set, the amount of change cannot be set. In this case, the torque command will be input by step input.

12.8 [Torque profile type (Obj. 6088h)]

[Torque profile type (Obj. 6088h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RW	RxPDO	0	0 (fixed)	—	Impossible	—

Description

Set the torque command pattern. Only the value "0" can be set.

Setting value	Description
0	Linear ramp
1	$\sin^2$ ramp (not supported)

12.9 [Positive torque limit value (Obj. 60E0h)]

[Positive torque limit value (Obj. 60E0h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	—	0 to 10000	0.1 %	Possible	[Pr. PA11]/[Pr. PA12]

Description

The torque generated by the servo motor or the thrust generated by the linear servo motor can be limited. Set the limit value of the torque of the servo motor for CCW power running or CW regeneration, or the limit value of the thrust of the linear servo motor for positive direction power running or negative direction regeneration.
If this object is set to "0", the servo motor does not generate torque or thrust.
When POL is disabled, the value of [Pr. PA11 Forward rotation torque limit] will be set, and when POL is enabled, the value of [Pr. PA12 Reverse rotation torque limit] will be set.

12.10 [Negative torque limit value (Obj. 60E1h)]

[Negative torque limit value (Obj. 60E1h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	—	0 to 10000	0.1 %	Possible	[Pr. PA11]/[Pr. PA12]

Description

The torque generated by the servo motor or the thrust generated by the linear servo motor can be limited. Set the limit value of the torque of the servo motor for CW power running or CCW regeneration, or the limit value of the thrust of the linear servo motor for negative direction power running or positive direction regeneration.
If this object is set to "0", the servo motor does not generate torque or thrust.
When POL is disabled, the value of [Pr. PA12 Reverse rotation torque limit] will be set, and when POL is enabled, the value of [Pr. PA11 Forward rotation torque limit] will be set.

13 Profile Position Mode Objects

13.1 [Target position (Obj. 607Ah)]

[Target position (Obj. 607Ah: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	RxPDO	—	Refer to the following.	pos units	Impossible	—

Description

Set the position command used in the cyclic synchronous position mode (csp) and the profile position mode (pp). Check the setting value of [Gear ratio (Obj. 6091h)] before setting a value in this object.

The setting range varies depending on the value of [Pr. PT01.2 Unit for position data].

Control mode	[Pr. PT01.2]	Range
Cyclic synchronous position mode (csp)	—	80000000h to 7FFFFFFFh (-2147483648 to 2147483647)
Profile position mode (pp)	2 (degree)	FFFA81C0h to 00057E40h (-360000 to 360000)
	3 (pulse)	80000000h to 7FFFFFFFh (-2147483648 to 2147483647)

13.2 [Position range limit (Obj. 607Bh)]

[Position range limit (Obj. 607Bh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	2	2 (fixed)	—	Impossible	—

Description

The total number of Sub Indexes (= 2) is returned.

[Min position range limit (Obj. 607Bh: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	RxPDO	—	Refer to the following.	pos units	Impossible	—

Description

Set the range for limiting the command position. The setting range varies depending on the value of [Pr. PT01.2 Unit for position data].

[Position range limit] is automatically set in accordance with [Pr. PT01.2]. Do not write a value to [Position range limit]. Writing a value will result in a write error.

[Pr. PT01.2]	Range
2 (degree)	00000000h to 00057E3Fh (0 to 359999)
3 (pulse)	80000000h to 7FFFFFFFh (-2147483648 to 2147483647)

[Max position range limit (Obj. 607Bh: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	RxPDO	—	—	pos units	Impossible	—

Description

Refer to the following object.

☞ Page 112 [Min position range limit (Obj. 607Bh: 01h)]

13.3 [Software position limit (Obj. 607Dh)]

[Software position limit (Obj. 607Dh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	2	2 (fixed)	—	Impossible	—

Description

The total number of Sub Indexes (= 2) is returned.

[Min position limit (Obj. 607Dh: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	RxPDO	0	-2147483648 to 2147483647	pos units	Possible	[Pr. PT17]

Description

Set the range for limiting the command position.

For [Min position limit (Obj. 607Dh: 01h)], set the stroke limit value for the address increasing direction in units of commands.

For [Max position limit (Obj. 607Dh: 02h)], set the stroke limit value for the address decreasing direction in units of commands.

[Target position (Obj. 607Ah)] is limited within the range between [Min position limit (Obj. 607Dh: 01h)] and [Max position limit (Obj. 607Dh: 02h)].

If the same value is set for [Min position limit (Obj. 607Dh: 01h)] and [Max position limit (Obj. 607Dh: 02h)], the function of [Software position limit (Obj. 607Dh)] is disabled.

Setting [Home offset (Obj. 607Ch)] will compensate for the software position limit.

After compensation, [Max position range limit] = [Max position range limit] - [Home offset]

After compensation, [Min position range limit] = [Min position range limit] - [Home offset]

• When the unit is set to "pulse"

When [Min position limit (Obj. 607Dh: 01h)] is set to a value greater than [Max position limit (Obj. 607Dh: 02h)], the function of [Software position limit (Obj. 607Dh)] is disabled.

• When the unit is set to "degree"

Set [Min position limit] as the starting point and [Max position limit] as the ending point. For details, refer to "Software position limit [G] [WG]" in the following manual.

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[Max position limit (Obj. 607Dh: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	RxPDO	0	-2147483648 to 2147483647	pos units	Possible	[Pr. PT15]

Description

Refer to the following object.

☞ Page 113 [Min position limit (Obj. 607Dh: 01h)]

13.4 [Max profile velocity (Obj. 607Fh)]

[Max profile velocity (Obj. 607Fh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	Refer to the following.	Refer to the following.	vel units	Possible	Refer to the following.

Description

Set the speed limit value of the profile position mode (pp) and the profile velocity mode (pv). When a value exceeding the value in this object or in [Max motor speed (Obj. 6080h)] is set in [Target velocity (Obj. 60FFh)] or [Profile velocity (Obj. 6081h)], the servo motor operates limiting the speed. The speed limit with [Max motor speed (Obj. 6080h)] has the priority.
The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Default	Range	Units	Parameter
—	0 (encoder unit)	Rotary servo motor	2000000	0 to 2000000	0.01 r/min	[Pr. PT66]
		Linear servo motor			0.01 mm/s	
2 (degree)	1 (command unit)	—	2147483647	0 to 4294967295	0.001 degree/s	[Pr. PV03]
3 (pulse)					pulse/s	

13.5 [Max motor speed (Obj. 6080h)]

[Max motor speed (Obj. 6080h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	TxPDO	10000	0 to 4294967295	Refer to the following.	Impossible	—

Description

The maximum speed of the servo motor is returned. Operation cannot be performed at a speed exceeding the value of this object.
The unit of returned data varies depending on the combination of the connected servo motor.
When changing the returning value to the permissible speed, set "1" in [Pr. PA28.4 Speed range limit selection].

Connected servo motor	Unit
Rotary servo motor	r/min
Linear servo motor	mm/s

13.6 [Profile velocity (Obj. 6081h)]

[Profile velocity (Obj. 6081h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	Refer to the following.	0 to maximum speed	vel units	Possible	Refer to the following.

Description

Set the speed command used in the profile position mode (pp). If [Pr. PT02.7] is set to "0" and the set speed exceeds 8000 r/min (or mm/s), the servo motor speed is clamped at 8000 r/min (or mm/s). When changing the maximum value of "Range" to the permissible speed, set [Pr. PA28.4 Speed range limit selection] to "1". The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Default	Units	Parameter
—	0 (encoder unit)	Rotary servo motor	10000	0.01 r/min	[Pr. PT65]
		Linear servo motor		0.01 mm/s	
2 (degree)	1 (command unit)	—	0	0.001 degree/s	[Pr. PV01]
3 (pulse)				pulse/s	

13.7 [Profile acceleration (Obj. 6083h)]

[Profile acceleration (Obj. 6083h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	Refer to the following.	Refer to the following.	acc units	Possible	Refer to the following.

Description

Set the acceleration time constant or the acceleration used in the profile position mode (pp) and the profile velocity mode (pv). The description of the object varies as shown in the table below depending on the settings of [Pr. PT01.2 Unit for position data] and [Pr. PT01.1 Speed/acceleration/deceleration unit selection]. When [Pr. PT01.1] is set to "0", set the time required for the servo motor to reach the rated speed. The value that can be set varies for each control mode.

[Pr. PT01.2]	[Pr. PT01.1]	Default	Range	Units	Parameter
—	0 (encoder unit)	100	pp: 0 to 20000 pv: 0 to 50000	ms	[Pr. PT49]
2 (degree)	1 (command unit)	0	0 to 4294967295 *1	0.001 degree/s^2	[Pr. PV05]
3 (pulse)				pulse/s^2	

*1 When "0" is set, the servo motor accelerates in accordance with the setting value of [Pr. PT49].

13.8 [Profile deceleration (Obj. 6084h)]

[Profile deceleration (Obj. 6084h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	Refer to the following.	Refer to the following.	acc units	Possible	Refer to the following.

Description

Set the deceleration time constant or the deceleration used in the profile position mode (pp) and the profile velocity mode (pv). The description of the object varies as shown in the table below depending on the settings of [Pr. PT01.2 Unit for position data] and [Pr. PT01.1 Speed/acceleration/deceleration unit selection]. When [Pr. PT01.1] is set to "0", set the time required for the servo motor to reach the rated speed. The value that can be set varies for each control mode.

[Pr. PT01.2]	[Pr. PT01.1]	Default	Range	Units	Parameter
—	0 (encoder unit)	100	pp: 0 to 20000 pv: 0 to 50000	ms	[Pr. PT50]
2 (degree)	1 (command unit)	0	0 to 4294967295 *1	0.001 degree/s^2	[Pr. PV07]
3 (pulse)				pulse/s^2	

*1 When "0" is set, the servo motor decelerates in accordance with the setting value of [Pr. PT50].

13.9 [Quick stop deceleration (Obj. 6085h)]

[Quick stop deceleration (Obj. 6085h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	Refer to the following.	Refer to the following.	acc units	Possible	Refer to the following.

Description

Set the deceleration time constant or deceleration for the Quick stop function. When [Pr. PT01.1] is set to "0", set the time required for the servo motor to stop from the rated speed.
The description of the object varies as shown in the table below depending on the settings of [Pr. PT01.2 Unit for position data] and [Pr. PT01.1 Speed/acceleration/deceleration unit selection].

[Pr. PT01.2]	[Pr. PT01.1]	Default	Range	Units	Parameter
—	0 (encoder unit)	100	0 to 20000 *1	ms	[Pr. PC24]
2 (degree)	1 (command unit)	0	0 to 4294967295 *2	0.001 degree/s^2	[Pr. PV09]
3 (pulse)				pulse/s^2	

*1 When the setting value of this object is "0", the deceleration time constant is 100 ms.
*2 When "0" is set, the servo motor decelerates in accordance with the setting value of [Pr. PC24].

13.10 [Motion profile type (Obj. 6086h)]

[Motion profile type (Obj. 6086h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RW	RxPDO	-1	-1 (fixed)	—	Impossible	—

Description

Set the acceleration/deceleration pattern applied in the profile position mode (pp). The description is as follows.

The value of this object always returns "-1". Only the value "-1" can be set.

Setting value	Description
-1	S-pattern
0	Linear ramp (not supported)
1	Sin^2 ramp (not supported)
2	Jerk-free ramp (not supported)
3	Jerk-limited ramp (not supported)

14 Homing Mode Objects

14.1 [Home offset (Obj. 607Ch)]

[Home offset (Obj. 607Ch: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	TxPDO	0	-2147483648 to 2147483647	pos units	Possible	[Pr. PT08]

Description

Set the difference between zero position of the machine coordinate system and homing position.

14.2 [Homing method (Obj. 6098h)]

[Homing method (Obj. 6098h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I8	RW	RxPDO	37	-43 to 37	—	Possible	[Pr. PT45]

Description

Set a homing method.

14.3 [Homing speeds (Obj. 6099h)]

[Homing speeds (Obj. 6099h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	2	2 (fixed)	—	Impossible	—

Description

The total number of Sub Indexes (= 2) is returned.

[Speed during search for switch (Obj. 6099h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	Refer to the following.	0 to maximum speed	vel units	Possible	Refer to the following.

Description

Set the servo motor speed for homing. If [Pr. PT02.7] is set to "0" and the set speed exceeds 8000 r/min (or mm/s), the servo motor speed is clamped at 8000 r/min (or mm/s). When changing the maximum value of "Range" to the permissible speed, set [Pr. PA28.4 Speed range limit selection] to "1". The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Default	Units	Parameter
—	0 (encoder unit)	Rotary servo motor	10000	0.01 r/min	[Pr. PT05]
		Linear servo motor		0.01 mm/s	
2 (degree)	1 (command unit)	—	500000	0.001 degree/s	[Pr. PV11]
3 (pulse)				pulse/s	

[Speed during search for zero (Obj. 6099h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	Refer to the following.	0 to maximum speed	vel units	Possible	Refer to the following.

Description

Set a creep speed after proximity dog at homing. If [Pr. PT02.7] is set to "0" and the set speed exceeds 8000 r/min (or mm/s), the servo motor speed is clamped at 8000 r/min (or mm/s). When changing the maximum value of "Range" to the permissible speed, set [Pr. PA28.4 Speed range limit selection] to "1". The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Default	Units	Parameter
—	0 (encoder unit)	Rotary servo motor	1000	0.01 r/min	[Pr. PT06]
		Linear servo motor		0.01 mm/s	
2 (degree)	1 (command unit)	—	100000	0.001 degree/s	[Pr. PV13]
3 (pulse)				pulse/s	

14.4 [Homing acceleration (Obj. 609Ah)]

[Homing acceleration (Obj. 609Ah: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	Refer to the following.	Refer to the following.	acc units	Possible	Refer to the following.

Description

Set the acceleration/deceleration time constants at homing. Set a time for the servo motor to reach the rated speed. The description of the object varies as shown in the table below depending on the settings of [Pr. PT01.2 Unit for position data] and [Pr. PT01.1 Speed/acceleration/deceleration unit selection].

[Pr. PT01.2]	[Pr. PT01.1]	Default	Range	Units	Parameter
—	0 (encoder unit)	0	0 to 20000	ms	[Pr. PT56]
2 (degree)	1 (command unit)	0	0 to 4294967295 *1	0.001 degree/s^2	[Pr. PV15]
3 (pulse)				pulse/s^2	

*1 When "0" is set, the servo motor decelerates in accordance with the setting value of [Pr. PT56].

14.5 [Supported homing method (Obj. 60E3h)]

[Supported homing method (Obj. 60E3h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	—	—	—	Impossible	—

Description

The total number of Sub Indexes is returned.

[1st supported homing method (Obj. 60E3h: 01h)] - [41st supported homing method (Obj. 60E3h: 29h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I8	RO	Impossible	—	—	—	Impossible	—

Description

The supported homing type is returned. "Range" is fixed to the value in "Default".

The following table lists the homing methods and "Default" values for firmware version B2.

Sub Index	Name	Default
01h	1st supported homing method	37
02h	2nd supported homing method	35
03h	3rd supported homing method	34
04h	4th supported homing method	33
05h	5th supported homing method	28
06h	6th supported homing method	27
07h	7th supported homing method	24
08h	8th supported homing method	23
09h	9th supported homing method	22
0Ah	10th supported homing method	21
0Bh	11th supported homing method	20
0Ch	12th supported homing method	19
0Dh	13th supported homing method	12
0Eh	14th supported homing method	11
0Fh	15th supported homing method	8
10h	16th supported homing method	7
11h	17th supported homing method	6
12h	18th supported homing method	5
13h	19th supported homing method	4
14h	20th supported homing method	3
15h	21st supported homing method	2
16h	22nd supported homing method	1
17h	23rd supported homing method	-1
18h	24th supported homing method	-2
19h	25th supported homing method	-3
1Ah	26th supported homing method	-4
1Bh	27th supported homing method	-6
1Ch	28th supported homing method	-7
1Dh	29th supported homing method	-8
1Eh	30th supported homing method	-9
1Fh	31st supported homing method	-10
20h	32nd supported homing method	-11
21h	33rd supported homing method	-33
22h	34th supported homing method	-34
23h	35th supported homing method	-36
24h	36th supported homing method	-38
25h	37th supported homing method	-39
26h	38th supported homing method	-40
27h	39th supported homing method	-41
28h	40th supported homing method	-42
29h	41st supported homing method	-43

15 Factor Group Objects

15.1 [Polarity (Obj. 607Eh)]

[Polarity (Obj. 607Eh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RW	RxPDO	00h	00h to E0h	—	Possible	[Pr. PA14] [Pr. PC29.3]

Description

The rotation direction selection can be set.

Bit	Description
0	reserved
1	reserved
2	reserved
3	reserved
4	reserved
5	0: Servo motor CCW rotation at positive torque 1: Servo motor CW rotation at positive torque
6	0: Servo motor CCW rotation at positive speed 1: Servo motor CW rotation at positive speed
7	0: Servo motor CCW rotation in the positioning address increase direction 1: Servo motor CW rotation in the positioning address increase direction

15.2 [Position encoder resolution (Obj. 608Fh)]

[Position encoder resolution (Obj. 608Fh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	2	2 (fixed)	—	Impossible	—

Description

The total number of Sub Indexes (= 2) is returned.

[Encoder increments (Obj. 608Fh: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	TxPDO	—	0 to 4294967295	inc	Impossible	—

Description

The encoder resolution is returned. When the linear servo motor is connected, the virtual resolution per revolution is returned. When the servo motor is used on a fully closed loop system configuration, the number of the load-side pulses of one revolution of the servo-motor side is returned.
Writing a value triggers an error.

[Motor revolutions (Obj. 608Fh: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	TxPDO	1	1 (fixed)	rev	Impossible	—

Description

The number of revolutions of the servo motor is returned. The value for the number of revolutions of the servo motor is fixed to "1".
Writing a value triggers an error.

15.3 [Gear ratio (Obj. 6091h)]

[Gear ratio (Obj. 6091h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	2	2 (fixed)	—	Impossible	—

Description

The total number of Sub Indexes (= 2) is returned.

[Motor revolutions (Obj. 6091h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	1	1 to 2147483647	rev	Possible	[Pr. PA06]

Description

The number of revolutions of the servo motor shaft (numerator) can be set. Refer to "[Pr. PA06 Electronic gear - Numerator (*CMX)]" in the following manual for the range of settable values.

📖MR-J5-G/MR-J5W-G User's Manual (Parameters)

[Shaft revolutions (Obj. 6091h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	1	1 to 2147483647	rev	Possible	[Pr. PA07]

Description

The number of revolutions of the drive shaft (denominator) can be set. Refer to "[Pr. PA07 Electronic gear - Denominator (*CDV)]" in the following manual for the range of settable values.

📖MR-J5-G/MR-J5W-G User's Manual (Parameters)

15.4 [Feed constant (Obj. 6092h)]

[Position actual value (Obj. 6064h)] is calculated from [Gear ratio (Obj. 6091h)] and [Feed constant (Obj. 6092h)] as follows.

$$[\text{Position actual value (Obj. 6064h)}] = \frac{[\text{Position actual internal value (Obj. 6063h)}] \times [\text{Feed constant (Obj. 6092h)}]}{[\text{Position encoder resolution (Obj. 608Fh)}] \times [\text{Gear ratio (Obj. 6091h)}]}$$

[Feed constant (Obj. 6092h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	2	2 (fixed)	—	Impossible	—

Description

The total number of Sub Indexes (= 2) is returned.

[Feed (Obj. 6092h: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	—	—	pos units	Impossible	—

Description

The travel distance per revolution of the output shaft is returned. [Feed] is automatically set in accordance with [Pr. PT01.2 Unit for position data]. Do not write a value to [Feed]. Writing a value triggers an error.

[Shaft revolutions (Obj. 6092h: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	—	1 to 1000	rev	Possible	—

Description

The number of revolutions of the servo motor is returned. Writing a value triggers an error.

15.5 [SI unit position (Obj. 60A8h)]

[SI unit position (Obj. 60A8h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	Impossible	—	Refer to the following.	—	Impossible	—

Description

This object value is automatically set in accordance with [Pr. PT01.2 Unit for position data].

[Pr. PT01.2]	Range
2 (degree) *1	FD410000h (0.001 degree)
3 (pulse)	00000000h (1 pulse)

*1 This setting is available in the profile mode (pp/pv/tq) and homing mode (hm).

15.6 [SI unit velocity (Obj. 60A9h)]

[SI unit velocity (Obj. 60A9h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	Impossible	—	Refer to the following.	—	Impossible	—

Description

The SI unit velocity is returned.

The SI unit velocity is automatically set in accordance with the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Range
—	0 (encoder unit)	Rotary servo motor	FEB44700h (0.01 r/min)
		Linear servo motor	FB010300h (0.01 mm/s)
2 (degree)	1 (command unit)	—	FD410300h (0.001 degree/s)
3 (pulse)			00000300h (pulse/s)

15.7 [SI unit acceleration (Obj. 60AAh)]

[SI unit acceleration (Obj. 60AAh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	Impossible	—	Refer to the following.	—	Impossible	—

Description

The SI unit acceleration is returned.

The SI unit acceleration is automatically set in accordance with the combination of the settings of [Pr. PT01.2 Unit for position data] and [Pr. PT01.1 Speed/acceleration/deceleration unit selection].

[Pr. PT01.2]	[Pr. PT01.1]	Range
—	0 (encoder unit)	FD030000h (ms)
2 (degree)	1 (command unit)	FD415700h (0.001 degree/s^2)
3 (pulse)		00005700h (pulse/s^2)

16 Touch Probe Function Objects

16.1 [Touch probe function 2 (Obj. 2DE8h)]

[Touch probe function 2 (Obj. 2DE8h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	—	0000h to 0037h	—	Impossible	—

Description

Set the detail of the touch probe function.

Bit	Description
0	0: Touch probe 3 disabled 1: Touch probe 3 enabled
1	0: Single trigger mode 1: Continuous trigger mode
2	0: Triggered by inputting touch probe 3 1: Triggered at the zero point of the encoder
3	(reserved) The value at reading is undefined. Set "0" when writing.
4	0: Stop sampling the rising edge of touch probe 3 1: Start sampling the rising edge of touch probe 3 If input of touch probe 3 is set as a trigger (bit 2 = 0), the position feedback latched at the rising edge of touch probe 3 is stored in [Touch probe 3 positive edge (Obj. 2DEAh)], and the time stamp in [Touch probe time stamp 3 positive value (Obj. 2DF8h)]. If the zero point of the encoder is set as a trigger (bit 2 = 1), the position feedback at passing the zero point of the encoder *1 is stored in [Touch probe 3 positive edge (Obj. 2DEAh)].
5	0: Stop sampling the falling edge of touch probe 3 1: Start sampling the falling edge of touch probe 3 If input of touch probe 3 is set as a trigger (bit 2 = 0), the position feedback latched at the falling edge of touch probe 3 is stored in [Touch probe 3 negative edge (Obj. 2DEBh)], and the time stamp in [Touch probe time stamp 3 negative value (Obj. 2DF9h)]. If the zero point of the encoder is set as a trigger (bit 2 = 1), the position feedback at passing the zero point of the encoder *1 is stored in [Touch probe 3 negative edge (Obj. 2DEBh)].
6	(reserved) The value at reading is undefined. Set "0" when writing.
7	
8 to 15	

*1 For linear servo motors, the zero point of the encoder is a position between homing stop intervals [pulse] (changeable with [Pr. PL01.2 Homing stop interval setting]) based on the linear encoder home position.

16.2 [Touch probe status 2 (Obj. 2DE9h)]

[Touch probe status 2 (Obj. 2DE9h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	—	0000h to 00FFh	—	Impossible	—

Description

The status of the touch probe function is returned.

Bit	Description
0	0: Touch probe 3 disabled 1: Touch probe 3 enabled
1	0: The position at the rising edge of touch probe 3 has not been stored. 1: The position at the rising edge of touch probe 3 has been stored. When the position feedback is stored in [Touch probe 3 positive edge (Obj. 2DEAh)] and the time stamp in [Touch probe time stamp 3 positive value (Obj. 2DF8h)], "1" is set. This bit is cleared to "0" when bit 4 of [Touch probe function 2 (Obj. 2DE8h)] is set to "0".
2	0: The position at the falling edge of touch probe 3 has not been stored. 1: The position at the falling edge of touch probe 3 has been stored. When the position feedback is stored in [Touch probe 3 negative edge (Obj. 2DEBh)] and the time stamp in [Touch probe time stamp 3 negative value (Obj. 2DF9h)], "1" is set. This bit is cleared to "0" when bit 5 of [Touch probe function 2 (Obj. 2DE8h)] is set to "0".
3 to 5	(reserved) The value at reading is undefined.
6	Toggle status for latch completion at the rising edge of touch probe 3 0 or 1: When bit 1 of [Touch probe function 2 (Obj. 2DE8h)] is set to "1" (continuous trigger mode), the status toggles between "0" and "1" every time the position feedback is stored in [Touch probe 3 positive edge (Obj. 2DEAh)] and the time stamp is stored in [Touch probe time stamp 3 positive value (Obj. 2DF8h)].
7	Toggle status for latch completion at the falling edge of touch probe 3 0 or 1: When bit 1 of [Touch probe function 2 (Obj. 2DE8h)] is set to "1" (continuous trigger mode), the status toggles between "0" and "1" every time the position feedback is stored in [Touch probe 3 negative edge (Obj. 2DEBh)] and the time stamp is stored in [Touch probe time stamp 3 negative value (Obj. 2DF9h)].
8 to 15	(reserved) The value at reading is undefined.

16.3 [Touch probe 3 positive edge (Obj. 2DEAh)]

[Touch probe 3 positive edge (Obj. 2DEAh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	0	-2147483648 to 2147483647	pos units	Impossible	—

Description

The position latched at the rising edge of touch probe 3 is returned.

16.4 [Touch probe 3 negative edge (Obj. 2DEBh)]

[Touch probe 3 negative edge (Obj. 2DEBh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	0	-2147483648 to 2147483647	pos units	Impossible	—

Description

The position latched at the falling edge of touch probe 3 is returned.

16.5 [Touch probe time stamp 3 positive value (Obj. 2DF8h)]

[Touch probe time stamp 3 positive value (Obj. 2DF8h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	TxPDO	0	0 to 4294967295	ns	Impossible	—

Description

The time stamp latched at the rising edge of touch probe 3 (the lower 32 bits of the network time (unit: ns)) is returned.
"0" is returned in the following cases.

- The touch probe function is disabled.
- The servo amplifier does not support the touch probe function.
- Bit 2 of [Touch probe function 2 (Obj. 2DE8h: 00h)] is set to "0".

16.6 [Touch probe time stamp 3 negative value (Obj. 2DF9h)]

[Touch probe time stamp 3 negative value (Obj. 2DF9h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	TxPDO	0	0 to 4294967295	ns	Impossible	—

Description

The time stamp latched at the falling edge of touch probe 3 (the lower 32 bits of the network time (unit: ns)) is returned.
"0" is returned in the following cases.

- The touch probe function is disabled.
- The servo amplifier does not support the touch probe function.
- Bit 2 of [Touch probe function 2 (Obj. 2DE8h: 00h)] is set to "0".

16.7 [Touch probe function (Obj. 60B8h)]

[Touch probe function (Obj. 60B8h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RW	RxPDO	—	0000h to FFFFh	—	Impossible	—

Description

Set the detail of the touch probe function.

Bit	Description
0	0: Touch probe 1 disabled 1: Touch probe 1 enabled
1	0: Single trigger mode 1: Continuous trigger mode
2	0: Triggered by inputting touch probe 1 1: Triggered at the zero point of the encoder
3	(reserved) The value at reading is undefined. Set "0" when writing.
4	0: Stop sampling the rising edge of touch probe 1 1: Start sampling the rising edge of touch probe 1 If input of touch probe 1 is set as a trigger (bit 2 = 0), the position feedback latched at the rising edge of touch probe 1 is stored in [Touch probe 1 positive edge (Obj. 60BAh)], and the time stamp in [Touch probe time stamp 1 positive value (Obj. 60D1h)]. If the zero point of the encoder is set as a trigger (bit 2 = 1), the position feedback at passing the zero point of the encoder *1 is stored in [Touch probe 1 positive edge (Obj. 60BAh)].
5	0: Stop sampling the falling edge of touch probe 1 1: Start sampling the falling edge of touch probe 1 If input of touch probe 1 is set as a trigger (bit 2 = 0), the position feedback latched at the falling edge of touch probe 1 is stored in [Touch probe 1 negative edge (Obj. 60BBh)], and the time stamp in [Touch probe time stamp 1 negative value (Obj. 60D2h)]. If the zero point of the encoder is set as a trigger (bit 2 = 1), the position feedback at passing the zero point of the encoder *1 is stored in [Touch probe 1 negative edge (Obj. 60BBh)].
6	(reserved) The value at reading is undefined. Set "0" when writing.
7	
8	0: Touch probe 2 disabled 1: Touch probe 2 enabled
9	0: Single trigger mode 1: Continuous trigger mode
10	0: Triggered by inputting touch probe 2 1: Triggered at the zero point of the encoder
11	(reserved) The value at reading is undefined. Set "0" when writing.
12	0: Stop sampling the rising edge of touch probe 2 1: Start sampling the rising edge of touch probe 2 If input of touch probe 2 is set as a trigger (bit 10 = 0), the position feedback latched at the rising edge of touch probe 2 is stored in [Touch probe 2 positive edge (Obj. 60BCh)], and the time stamp in [Touch probe time stamp 2 positive value (Obj. 60D3h)]. If the zero point of the encoder is set as a trigger (bit 10 = 1), the position feedback at passing the zero point of the encoder *1 is stored in [Touch probe 2 positive edge (Obj. 60BCh)].
13	0: Stop sampling the falling edge of touch probe 2 1: Start sampling the falling edge of touch probe 2 If input of touch probe 2 is set as a trigger (bit 10 = 0), the position feedback latched at the falling edge of touch probe 2 is stored in [Touch probe 2 negative edge (Obj. 60BDh)], and the time stamp in [Touch probe time stamp 2 negative value (Obj. 60D4h)]. If the zero point of the encoder is set as a trigger (bit 10 = 1), the position feedback at passing the zero point of the encoder *1 is stored in [Touch probe 2 negative edge (Obj. 60BDh)].
14	(reserved) The value at reading is undefined. Set "0" when writing.
15	

*1 For linear servo motors, the zero point of the encoder is a position between homing stop intervals [pulse] (changeable with [Pr. PL01.2 Homing stop interval setting]) based on the linear encoder home position.

16.8 [Touch probe status (Obj. 60B9h)]

[Touch probe status (Obj. 60B9h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U16	RO	TxPDO	—	0000h to 0707h	—	Impossible	—

Description

The status of the touch probe function is returned.

When the touch probe function is disabled or when the function is not available for the servo amplifier used, "0" is returned.

Bit	Description
0	0: Touch probe 1 disabled 1: Touch probe 1 enabled
1	0: The data at the rising edge of touch probe 1 has not been stored. 1: The data at the rising edge of touch probe 1 has been stored. When the position feedback is stored in [Touch probe 1 positive edge (Obj. 60BAh)] and the time stamp in [Touch probe time stamp 1 positive value (Obj. 60D1h)], "1" is set. This bit is cleared to "0" when bit 4 of [Touch probe function (Obj. 60B8h)] is set to "0".
2	0: The data at the falling edge of touch probe 1 has not been stored. 1: The data at the falling edge of touch probe 1 has been stored. When the position feedback is stored in [Touch probe 1 negative edge (Obj. 60BBh)] and the time stamp in [Touch probe time stamp 1 negative value (Obj. 60D2h)], "1" is set. This bit is cleared to "0" when bit 5 of [Touch probe function (Obj. 60B8h)] is set to "0".
3 to 5	(reserved) The value at reading is undefined. Set "0" when writing.
6	Toggle status for latch completion at the rising edge of touch probe 1 0 or 1: When bit 1 of [Touch probe function (Obj. 60B8h)] is set to "1" (continuous trigger mode), the status toggles between "0" and "1" every time the position feedback is stored in [Touch probe 1 positive edge (Obj. 60BAh)] and the time stamp is stored in [Touch probe time stamp 1 positive value (Obj. 60D1h)].
7	Toggle status for latch completion at the falling edge of touch probe 1 0 or 1: When bit 1 of [Touch probe function (Obj. 60B8h)] is set to "1" (continuous trigger mode), the status toggles between "0" and "1" every time the position feedback is stored in [Touch probe 1 negative edge (Obj. 60BBh)] and the time stamp is stored in [Touch probe time stamp 1 negative value (Obj. 60D2h)].
8	0: Touch probe 2 disabled 1: Touch probe 2 enabled
9	0: The data at the rising edge of touch probe 2 has not been stored. 1: The data at the rising edge of touch probe 2 has been stored. When the position feedback is stored in [Touch probe 2 positive edge (Obj. 60BCh)] and the time stamp in [Touch probe time stamp 2 positive value (Obj. 60D3h)], "1" is set. This bit is cleared to "0" when bit 9 of [Touch probe function (Obj. 60B8h)] is set to "0".
10	0: The data at the falling edge of touch probe 2 has not been stored. 1: The data at the falling edge of touch probe 2 has been stored. When the position feedback is stored in [Touch probe 2 negative edge (Obj. 60BDh)] and the time stamp in [Touch probe time stamp 2 negative value (Obj. 60D4h)], "1" is set. This bit is cleared to "0" when bit 10 of [Touch probe function (Obj. 60B8h)] is set to "0".
11 to 13	(reserved) The value at reading is undefined. Set "0" when writing.
14	Toggle status for latch completion at the rising edge of touch probe 2 0 or 1: When bit 9 of [Touch probe function (Obj. 60B8h)] is set to "1" (continuous trigger mode), the status toggles between "0" and "1" every time the position feedback is stored in [Touch probe 2 positive edge (Obj. 60BCh)] and the time stamp is stored in [Touch probe time stamp 2 positive value (Obj. 60D3h)].
15	Toggle status for latch completion at the falling edge of touch probe 2 0 or 1: When bit 9 of [Touch probe function (Obj. 60B8h)] is set to "1" (continuous trigger mode), the status toggles between "0" and "1" every time the position feedback is stored in [Touch probe 2 negative edge (Obj. 60BDh)] and the time stamp is stored in [Touch probe time stamp 2 negative value (Obj. 60D4h)].

16.9 [Touch probe 1 positive edge (Obj. 60BAh)]

[Touch probe 1 positive edge (Obj. 60BAh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	0	-2147483648 to 2147483647	pos units	Impossible	—

Description

The position latched at the rising edge of touch probe 1 is returned.

When the touch probe function is disabled or when the function is not available for the servo amplifier used, "0" is returned.

16.10 [Touch probe 1 negative edge (Obj. 60BBh)]

[Touch probe 1 negative edge (Obj. 60BBh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	0	-2147483648 to 2147483647	pos units	Impossible	—

Description

The position latched at the falling edge of touch probe 1 is returned.

When the touch probe function is disabled or when the function is not available for the servo amplifier used, "0" is returned.

16.11 [Touch probe 2 positive edge (Obj. 60BCh)]

[Touch probe 2 positive edge (Obj. 60BCh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	0	-2147483648 to 2147483647	pos units	Impossible	—

Description

The position latched at the rising edge of touch probe 2 is returned.

When the touch probe function is disabled or when the function is not available for the servo amplifier used, "0" is returned.

16.12 [Touch probe 2 negative edge (Obj. 60BDh)]

[Touch probe 2 negative edge (Obj. 60BDh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RO	TxPDO	0	-2147483648 to 2147483647	pos units	Impossible	—

Description

The position latched at the falling edge of touch probe 2 is returned.

When the touch probe function is disabled or when the function is not available for the servo amplifier used, "0" is returned.

16.13 [Touch probe time stamp 1 positive value (Obj. 60D1h)]

[Touch probe time stamp 1 positive value (Obj. 60D1h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	TxPDO	0	0 to 4294967295	ns	Impossible	—

Description

The time stamp latched at the rising edge of touch probe 1 (the lower 32 bits of the network time (unit: ns)) is returned.
"0" is returned in the following cases.

- The touch probe function is disabled.
- The servo amplifier does not support the touch probe function.
- Bit 2 of [Touch probe function (Obj. 60B8h: 00h)] is set to "0".

16.14 [Touch probe time stamp 1 negative value (Obj. 60D2h)]

[Touch probe time stamp 1 negative value (Obj. 60D2h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	TxPDO	0	0 to 4294967295	ns	Impossible	—

Description

The time stamp latched at the falling edge of touch probe 1 (the lower 32 bits of the network time (unit: ns)) is returned.
"0" is returned in the following cases.

- The touch probe function is disabled.
- The servo amplifier does not support the touch probe function.
- Bit 2 of [Touch probe function (Obj. 60B8h: 00h)] is set to "0".

16.15 [Touch probe time stamp 2 positive value (Obj. 60D3h)]

[Touch probe time stamp 2 positive value (Obj. 60D3h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	TxPDO	0	0 to 4294967295	ns	Impossible	—

Description

The time stamp latched at the rising edge of touch probe 2 (the lower 32 bits of the network time (unit: ns)) is returned.
"0" is returned in the following cases.

- The touch probe function is disabled.
- The servo amplifier does not support the touch probe function.
- Bit 10 of [Touch probe function (Obj. 60B8h: 00h)] is set to "0".

16.16 [Touch probe time stamp 2 negative value (Obj. 60D4h)]

[Touch probe time stamp 2 negative value (Obj. 60D4h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	TxPDO	0	0 to 4294967295	ns	Impossible	—

Description

The time stamp latched at the falling edge of touch probe 2 (the lower 32 bits of the network time (unit: ns)) is returned.
"0" is returned in the following cases.

- The touch probe function is disabled.
- The servo amplifier does not support the touch probe function.
- Bit 10 of [Touch probe function (Obj. 60B8h: 00h)] is set to "0".

17 Optional application FE Objects

17.1 [Digital inputs (Obj. 60FDh)]

[Digital inputs (Obj. 60FDh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RO	TxPDO	—	00000000h to 037F0007h	—	Impossible	—

Description

The ON/OFF status of the input device connected to the servo amplifier is returned.

Bit	Name	DI pin				
		MR-J5-G-N1	MR-J5-G-RJN1	MR-J5W_-G-N1		
				A-axis	B-axis	C-axis *1
17	DI1	CN3-2	CN3-2	CN3-7	CN3-20	CN3-1
18	DI2	CN3-12	CN3-12	CN3-8	CN3-21	CN3-2
19	DI3	CN3-19	CN3-19	CN3-9	CN3-22	CN3-15
20	DI4	—	CN3-10	—	—	—
21	DI5	—	CN3-1	—	—	—
22	EM2/EM1	CN3-20	CN3-20	CN3-10	CN3-10	CN3-10

*1 For 3-axis servo amplifiers

Bit	Description
0	Negative limit switch The output can be reversed with the [Pr. PC76.3 Limit switch status read selection] setting. When [Pr. PA14] is set to "0": 0: LSN (Reverse rotation stroke end) off 1: LSN (Reverse rotation stroke end) on When [Pr. PA14] is set to "1": 0: LSP (Forward rotation stroke end) off 1: LSP (Forward rotation stroke end) on
1	Positive limit switch The output can be reversed with the [Pr. PC76.3] setting. When [Pr. PA14] is set to "0": 0: LSP (Forward rotation stroke end) off 1: LSP (Forward rotation stroke end) on When [Pr. PA14] is set to "1": 0: LSN (Reverse rotation stroke end) off 1: LSN (Reverse rotation stroke end) on
2	Home switch 0: DOG (Proximity dog) off 1: DOG (Proximity dog) on
3 to 16	(reserved) The value at reading is undefined.
17	DI1 Refer to the following for details. ☞ Page 137 DI1
18	DI2 Refer to the following for details. ☞ Page 137 DI2
19	DI3 Refer to the following for details. ☞ Page 138 DI3
20	DI4 Refer to the following for details. ☞ Page 138 DI4
21	DI5 Refer to the following for details. ☞ Page 139 DI5
22	EM2/EM1 Refer to the following for details. ☞ Page 139 EM2/EM1
23	(reserved) The value at reading is undefined.
24	Safe torque off 1 0: STO1 off 1: STO1 on
25	Safe torque off 2 0: STO2 off 1: STO2 on
26 to 31	(reserved) The value at reading is undefined.

■DI1

[Pr. PC79.0] Setting digit (BIN): _ _ x _ *1	[Pr. PD03.0-1] *2*3	[Pr. PD60.0] Setting digit (BIN): _ _ _ x *4	Description of DI1 *5
0	With assigned function	—	0: Input device selected with [Pr. PD03.0-1] is turned off 1: Input device selected with [Pr. PD03.0-1] is turned on
	No assigned function	0	0: Input 0 V to DI1 pin 1: Input 24 V to DI1 pin
		1	0: Input 24 V to DI1 pin 1: Input 0 V to DI1 pin
1	—	0	0: Input 0 V to DI1 pin 1: Input 24 V to DI1 pin
		1	0: Input 24 V to DI1 pin 1: Input 0 V to DI1 pin

*1 With the setting value of this servo parameter, whether to return the on/off state of the input device selected in [Pr. PD03.0-1] or to return the on/off state of DI1 pin can be selected.

*2 With the setting value of this servo parameter, the input device to be assigned to DI1 pin can be changed. When LSP/LSN is assigned, the output can be reversed with the [Pr. PC76.3] setting.

*3 "With assigned function" is applicable when this servo parameter is set to specific values such as "04 (PC)" and "0A (LSP)" and a device is assigned to DI1 pin.

*4 With the setting value of this servo parameter, the polarity of DI1 pin can be selected.

*5 Refer to "[Pr. PD03 Input device selection 1 (*DI1)]" in the following manual for DI pins which correspond to DI1.
MR-J5-G/MR-J5W-G User's Manual (Parameters)

■DI2

[Pr. PC79.0] Setting digit (BIN): _ x _ _ *1	[Pr. PD04.0-1] *2*3	[Pr. PD60.0] Setting digit (BIN): _ _ x _ *4	Description of DI2 *5
0	With assigned function	—	0: Input device selected with [Pr. PD04.0-1] is turned off 1: Input device selected with [Pr. PD04.0-1] is turned on
	No assigned function	0	0: Input 0 V to DI2 pin 1: Input 24 V to DI2 pin
		1	0: Input 24 V to DI2 pin 1: Input 0 V to DI2 pin
1	—	0	0: Input 0 V to DI2 pin 1: Input 24 V to DI2 pin
		1	0: Input 24 V to DI2 pin 1: Input 0 V to DI2 pin

*1 With the setting value of this servo parameter, whether to return the on/off state of the input device selected in [Pr. PD04.0-1] or to return the on/off state of DI2 pin can be selected.

*2 With the setting value of this servo parameter, the input device to be assigned to DI2 pin can be changed. When LSP/LSN is assigned, the output can be reversed with the [Pr. PC76.3] setting.

*3 "With assigned function" is applicable when this servo parameter is set to specific values such as "04 (PC)" and "0A (LSP)" and a device is assigned to DI2 pin.

*4 With the setting value of this servo parameter, the polarity of DI2 pin can be selected.

*5 Refer to "[Pr. PD04 Input device selection 2 (*DI2)]" in the following manual for DI pins which correspond to DI2.
MR-J5-G/MR-J5W-G User's Manual (Parameters)

■DI3

[Pr. PC79.0] Setting digit (BIN): x _ _ _ *1	[Pr. PD05.0-1] *2*3	[Pr. PD60.0] Setting digit (BIN): _ x _ _ *4	Description of DI3 *5
0	With assigned function	—	0: Input device selected with [Pr. PD05.0-1] is turned off 1: Input device selected with [Pr. PD05.0-1] is turned on
	No assigned function	0	0: Input 0 V to DI3 pin 1: Input 24 V to DI3 pin
		1	0: Input 24 V to DI3 pin 1: Input 0 V to DI3 pin
1	—	0	0: Input 0 V to DI3 pin 1: Input 24 V to DI3 pin
		1	0: Input 24 V to DI3 pin 1: Input 0 V to DI3 pin

*1 With the setting value of this servo parameter, whether to return the on/off state of the input device selected in [Pr. PD04.0-1] or to return the on/off state of DI3 pin can be selected.

*2 With the setting value of this servo parameter, the input device to be assigned to DI3 pin can be changed. When LSP/LSN is assigned, the output can be reversed with the [Pr. PC76.3] setting.

*3 "With assigned function" is applicable when this servo parameter is set to specific values such as "04 (PC)" and "0A (LSP)" and a device is assigned to DI3 pin.

*4 With the setting value of this servo parameter, the polarity of DI3 pin can be selected.

*5 Refer to "[Pr. PD05 Input device selection 3 (*DI3)]" in the following manual for DI pins which correspond to DI3.
MR-J5-G/MR-J5W-G User's Manual (Parameters)

■DI4

[Pr. PC79.1] Setting digit (BIN): _ _ _ x *1	[Pr. PD38.0-1] *2*3	[Pr. PD60.0] Setting digit (BIN): x _ _ _ *4	Description of DI4 *5
0	With assigned function	—	0: Input device selected with [Pr. PD38.0-1] is turned off 1: Input device selected with [Pr. PD38.0-1] is turned on
	No assigned function	0	0: Input 0 V to DI4 pin 1: Input 24 V to DI4 pin
		1	0: Input 24 V to DI4 pin 1: Input 0 V to DI4 pin
1	—	0	0: Input 0 V to DI4 pin 1: Input 24 V to DI4 pin
		1	0: Input 24 V to DI4 pin 1: Input 0 V to DI4 pin

*1 With the setting value of this servo parameter, whether to return the on/off state of the input device selected in [Pr. PD38.0-1] or to return the on/off state of DI4 pin can be selected.

*2 With the setting value of this servo parameter, the input device to be assigned to DI4 pin can be changed. When LSP/LSN is assigned, the output can be reversed with the [Pr. PC76.3] setting.

*3 "With assigned function" is applicable when this servo parameter is set to specific values such as "04 (PC)" and "0A (LSP)" and a device is assigned to DI4 pin.

*4 With the setting value of this servo parameter, the polarity of DI4 pin can be selected.

*5 Refer to "[Pr. PD38 Input device selection 4 (*DI4)]" in the following manual for DI pins which correspond to DI4.
MR-J5-G/MR-J5W-G User's Manual (Parameters)

■DI5

[Pr. PC79.1] Setting digit (BIN): _ _ x _ *1	[Pr. PD39.0-1] *2*3	[Pr. PD60.1] Setting digit (BIN): _ _ _ x *4	Description of DI5 *5
0	With assigned function	—	0: Input device selected with [Pr. PD39.0-1] is turned off 1: Input device selected with [Pr. PD39.0-1] is turned on
	No assigned function	0	0: Input 0 V to DI5 pin 1: Input 24 V to DI5 pin
		1	0: Input 24 V to DI5 pin 1: Input 0 V to DI5 pin
1	—	0	0: Input 0 V to DI5 pin 1: Input 24 V to DI5 pin
		1	0: Input 24 V to DI5 pin 1: Input 0 V to DI5 pin

*1 With the setting value of this servo parameter, whether to return the on/off state of the input device selected in [Pr. PD39.0-1] or to return the on/off state of DI5 pin can be selected.

*2 With the setting value of this servo parameter, the input device to be assigned to DI5 pin can be changed. When LSP/LSN is assigned, the output can be reversed with the [Pr. PC76.3] setting.

*3 "With assigned function" is applicable when this servo parameter is set to specific values such as "04 (PC)" and "0A (LSP)" and a device is assigned to DI5 pin.

*4 With the setting value of this servo parameter, the polarity of DI5 pin can be selected.

*5 Refer to "[Pr. PD39 Input device selection 5 (*DI5)]" in the following manual for DI pins which correspond to DI5.
MR-J5-G/MR-J5W-G User's Manual (Parameters)

■EM2/EM1

[Pr. PC79.1] Setting digit (BIN): _ x _ _ *1	[Pr. PA04.3]	Description of EM2/EM1 *2
0	2	0: EM2 (Forced stop 2) off 1: EM2 (Forced stop 2) on
	0	0: EM1 (Forced stop 1) off 1: EM1 (Forced stop 1) on
1	—	0: Input 24 V to EM2/EM1 pin 1: Input 0 V to EM2/EM1 pin

*1 With the setting value of this servo parameter, whether to return the on/off state of EM2 (Forced stop 2)/EM1 (Forced stop 1) or to return the on/off state of EM2/EM1 pin can be selected.

*2 The DI pins corresponding to EM2/EM1 are the CN3-20 pin for 1-axis servo amplifiers and the CN3-10 pin for multi-axis servo amplifiers.

17.2 [Digital outputs (Obj. 60FEh)]

[Digital outputs (Obj. 60FEh: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U8	RO	Impossible	2	2 (fixed)	—	Impossible	—

Description

The total number of Sub Indexes (= 2) is returned.

[Physical outputs (Obj. 60FEh: 01h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	00000000h	00000000h to 000E0000h	—	Impossible	—

Description

Set the ON/OFF states of the output devices connected to the servo amplifier.

When DOA, DOB, and DOC are disabled with [Bitmask (Obj. 60FEh: 02h)], the values of bits 17, 18, and 19 in [Physical outputs (Obj. 60FEh: 01h)] are "0" regardless of the values.

Bit	Description
0 to 16	(reserved) The value at reading is undefined.
17	DO1 0: DOA (general-purpose output A) off 1: DOA (general-purpose output A) on To turn on or off the general-purpose output with the settings of this object, use [Pr. PD07] to [Pr. PD09] to assign general-purpose output A (DOA) to any of the pins in the table below.
18	DO2 0: DOB (general-purpose output B) off 1: DOB (general-purpose output B) on To turn on or off the general-purpose output with the settings of this object, use [Pr. PD07] to [Pr. PD09] to assign general-purpose output B (DOB) to any of the pins in the table below.
19	DO3 0: DOC (general-purpose output C) off 1: DOC (general-purpose output C) on To turn on or off the general-purpose output with the settings of this object, use [Pr. PD07] to [Pr. PD09] to assign general-purpose output C (DOC) to any of the pins in the table below.
20 to 31	(reserved) The value at reading is undefined.

Servo amplifier	Corresponding pin
MR-J5-_G_-_N1	CN3-9 pin, CN3-13 pin, CN3-15 pin
MR-J5W2-_G-N1	CN3-12 pin, CN3-25 pin, CN3-24 pin, CN3-11 pin
MR-J5W3-_G-N1	CN3-12 pin, CN3-25 pin, CN3-13 pin, CN3-24 pin, CN3-11 pin

For multi-axis servo amplifiers, the output condition changes according to the settings of [Pr. PD08.2 All-axis output condition selection] and [Pr. PD09.2 All-axis output condition selection].

MR-J5-G/MR-J5W-G User's Manual (Parameters)

[Bitmask (Obj. 60FEh: 02h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
U32	RW	RxPDO	00000000h	00000000h to 000E0000h	—	Impossible	—

Description

Set masks for the output devices connected to the servo amplifier.

Bit	Description
0 to 16	(reserved) The value at reading is undefined.
17	DO1 0: DOA (general-purpose output A) disabled *1 1: DOA (general-purpose output A) enabled
18	DO2 0: DOB (general-purpose output B) disabled *1 1: DOB (general-purpose output B) enabled
19	DO3 0: DOC (general-purpose output C) disabled *1 1: DOC (general-purpose output C) enabled
20 to 31	(reserved) The value at reading is undefined.

*1 When DOA, DOB, and DOC are disabled with [Bitmask (Obj. 60FEh: 02h)], the values of bits 17, 18, and 19 in [Physical outputs (Obj. 60FEh: 01h)] are "0" regardless of the values.

18 Cyclic Synchronous Position Mode Objects

18.1 [Position offset (Obj. 60B0h)]

[Position offset (Obj. 60B0h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	RxPDO	0	80000000h to 7FFFFFFFh	pos units	Impossible	—

Description

Set the position offset.

18.2 [Velocity offset (Obj. 60B1h)]

[Velocity offset (Obj. 60B1h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I32	RW	RxPDO	0	-2147483648 to 2147483647	vel units	Impossible	—

Description

Set the velocity offset.

The description of the object varies as shown in the table below, depending on the combination of the settings of [Pr. PT01.2 Unit for position data], [Pr. PT01.1 Speed/acceleration/deceleration unit selection], and the connected servo motor.

[Pr. PT01.2]	[Pr. PT01.1]	Connected servo motor	Units
—	0 (encoder unit)	Rotary servo motor	0.01 r/min
		Linear servo motor	0.01 mm/s
2 (degree)	1 (command unit)	—	0.001 degree/s
3 (pulse)			pulse/s

18.3 [Torque offset (Obj. 60B2h)]

[Torque offset (Obj. 60B2h: 00h)]

Data Type	Access	Mapping	Default	Range	Units	Save	Parameter
I16	RW	RxPDO	0	-32768 to 32767	0.1 % (with rated torque being 100 %)	Impossible	—

Description

Set the torque offset.

MEMO

REVISIONS

*The manual number is given on the bottom left of the back cover.

Revision date	*Manual number	Description
January 2020	SH(NA)-030376ENG-A	First edition
July 2020	SH(NA)-030376ENG-B	■Edited sections: Section 8.28, Section 8.53, Section 8.54, Section 8.60, Section 8.61, Section 14.5, Section 17.1
November 2020	SH(NA)-030376ENG-C	■Objects related to the following functions are modified: Degree unit, touch probe

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WARRANTY

Warranty

1. Warranty period and coverage

We will repair any failure or defect hereinafter referred to as "failure" in our FA equipment hereinafter referred to as the "Product" arisen during warranty period at no charge due to causes for which we are responsible through the distributor from which you purchased the Product or our service provider. However, we will charge the actual cost of dispatching our engineer for an on-site repair work on request by customer in Japan or overseas countries. We are not responsible for any on-site readjustment and/or trial run that may be required after a defective unit are repaired or replaced.

[Term]

For terms of warranty, please contact your original place of purchase.

[Limitations]

(1) You are requested to conduct an initial failure diagnosis by yourself, as a general rule.
It can also be carried out by us or our service company upon your request and the actual cost will be charged. However, it will not be charged if we are responsible for the cause of the failure.

(2) This limited warranty applies only when the condition, method, environment, etc. of use are in compliance with the terms and conditions and instructions that are set forth in the instruction manual and user manual for the Product and the caution label affixed to the Product.

(3) Even during the term of warranty, the repair cost will be charged on you in the following cases;

1. a failure caused by your improper storing or handling, carelessness or negligence, etc., and a failure caused by your hardware or software problem
2. a failure caused by any alteration, etc. to the Product made on your side without our approval
3. a failure which may be regarded as avoidable, if your equipment in which the Product is incorporated is equipped with a safety device required by applicable laws and has any function or structure considered to be indispensable according to a common sense in the industry
4. a failure which may be regarded as avoidable if consumable parts designated in the instruction manual, etc. are duly maintained and replaced
5. any replacement of consumable parts (battery, fan, smoothing capacitor, etc.)
6. a failure caused by external factors such as inevitable accidents, including without limitation fire and abnormal fluctuation of voltage, and acts of God, including without limitation earthquake, lightning and natural disasters
7. a failure generated by an unforeseeable cause with a scientific technology that was not available at the time of the shipment of the Product from our company
8. any other failures which we are not responsible for or which you acknowledge we are not responsible for

2. Term of warranty after the stop of production

(1) We may accept the repair at charge for another seven (7) years after the production of the product is discontinued. The announcement of the stop of production for each model can be seen in our Sales and Service, etc.

(2) Please note that the Product (including its spare parts) cannot be ordered after its stop of production.

3. Service in overseas countries

Our regional FA Center in overseas countries will accept the repair work of the Product. However, the terms and conditions of the repair work may differ depending on each FA Center. Please ask your local FA center for details.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to:

(1) Damages caused by any cause found not to be the responsibility of Mitsubishi.

(2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products.

(3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.

(4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Change of Product specifications

Specifications listed in our catalogs, manuals or technical documents may be changed without notice.

6. Application and use of the Product

(1) For the use of our AC Servo, its applications should be those that may not result in a serious damage even if any failure or malfunction occurs in AC Servo, and a backup or fail-safe function should operate on an external system to AC Servo when any failure or malfunction occurs.

(2) Our AC Servo is designed and manufactured as a general purpose product for use at general industries.
Therefore, applications substantially influential on the public interest for such as atomic power plants and other power plants of electric power companies, and also which require a special quality assurance system, including applications for railway companies and government or public offices are not recommended, and we assume no responsibility for any failure caused by these applications when used.
In addition, applications which may be substantially influential to human lives or properties for such as airlines, medical treatments, railway service, incineration and fuel systems, man-operated material handling equipment, entertainment machines, safety machines, etc. are not recommended, and we assume no responsibility for any failure caused by these applications when used.
We will review the acceptability of the abovementioned applications, if you agree not to require a specific quality for a specific application. Please contact us for consultation.

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MITSUBISHI ELECTRIC CORPORATION

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