

# Hitachi Inverter

WJ200 / WL200 SERIES

## WJ-PB (PROFIBUS Slave)

### Quick Reference Guide

(The printed material doesn't exist.)

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Thank you for your purchase of "HITACHI INVERTER SERIES." This Quick Reference Guide (QRG) outlines the handling of "WJ-PB (PROFIBUS Slave.)" Refer to this manual and the instruction manual of the inverter for installation, maintenance, and inspection. After reading this manual, keep it handy for future reference. Be sure to deliver this manual to the end user.

**After reading this manual, keep it handy for future reference.**

# HITACHI

NT354CX

- Request -

Thank you for your purchase of "WJ-PB (PROFIBUS Slave.)"

This Quick Reference Guide (QRG) outlines the handling and maintenance of "WJ-PB." Before using the product, carefully read this QRG with the instruction manual of the inverter, and keep it handy for quick reference of the operator and maintenance inspector. Read this QRG carefully and follow the instructions exactly before installing, operating, maintenance and inspection.

Always keep various kinds of specifications mentioned in this QRG and use exactly. And make sure to prevent trouble by correct inspection and maintenance. Make sure to deliver this QRG to the end user.

- Treatment of this QRG-

- (1) Please understand that the mentioned items of this QRG may be changed without permission.
- (2) All right reserved.
- (3) Please understand, the functions that are not listed in this QRG shall mean "does not support it."
- (4) If you find any incorrect descriptions, missing descriptions or have a question or inquiry concerning the contents of this QRG, please contact your Hitachi distributor.
- (5) Please understand that we hold no responsibility for any resulting effects, in spite of the above mentioned contents.

- Trademark-

PROFIBUS is trade names of the non-profit organization PROFIBUS Nutzerorganisation e.V.(PNO).

- Reference-

Please refer to PROFIBUS concerning general information on the PROFIBUS and PROFINET International (PI):

URL <http://www.profibus.com/>

- Operation guarantee -

This option conforms to PROFIBUS, but Hitachi Industrial Equipment Systems Co.,Ltd. cannot guarantee that this option can be connected to all PROFIBUS masters.

- WL200 -

WL200 is a product for Europe.

- Troubleshooting -

Please refer to chapter 9 in this QRG and the instruction manual of the PROFIBUS master.

### Revision History Table


No.	Revision contents	The date of issue	Engineering sheet No.
1.	Initial release of Quick Reference Guide	Sep. 2015	NT354AX
2.	Cancellation of the limitation	Mar. 2016	NT354BX
3	The EU Directives are amended.	May. 2016	NT354CX


Outside of this table, only revised spelling mistakes, omitted words, and error in writing will be changed without notice.


## SAFETY PRECAUTIONS

### **SAFETY PRECAUTIONS**

Carefully read this QRG and all of the warning labels attached to the inverter before installing, operating, maintaining, and inspecting. Safety precautions are classified into “Warning” and “Caution” in this QRG.

 **WARNING** : Indicates a potentially hazardous situation which, if not avoided, can result in serious injury or death.

 **CAUTION** : Indicates a potentially hazardous situation which, if not avoided, can result in minor to moderate injury, or serious damage to the product

The situation described in  **CAUTION** may, if not avoided, lead to serious adverse results. Important safety measures are described in CAUTION (as well as WARNING) so be sure observe them. Notes are described in this QRG in “NOTE.” Carefully read the contents and follow them exactly.

### **CAUTION**

In all the illustrations in this QRG, covers and safety devices are occasionally removed to describe the details. When the inverter is operated, make sure that the covers and safety devices are placed as they were specified originally and operate it according to the instruction manual of the inverter.

 **WARNING****Wiring:**

Wiring work shall be carried out by electrical experts.

**Otherwise, there is a danger of electric shock, fire and/or damage of product.**

Implement wiring after checking that the power supply is off.

**Otherwise, there is a danger of electric shock and/or fire.**

Be sure not to operate electrical equipment with wet hands.

**Otherwise, there is a danger of electric shock and/or injury.**

Concerning the cables, please do not injure, cause stress or sandwich.

**Otherwise, there is a danger of electric shock.**

**Operating:**

Please do not open the inverter's case or optional case when the power supply is on and please do not carry out the following operations when the power supply is on.

(1) Please do not touch the inside (ex. terminal parts).

(2) Please do not check the internal signal.

(3) Please do not put on or take off the internal wiring and connector.

**Otherwise, there is a danger of electric shock and/or fire.**

Do not touch the conductive parts such as the internal PCB, terminals or connector while power is being supplied.

**Otherwise, there is a danger of electric shock.**

Be sure not to remove this product while inverter is powered ON.

**Otherwise, there is a danger of electric shock and/or fire.**

**Maintenance, Inspection and Part Replacement:**

Wait at least 10 minutes after turning off the input power supply before performing maintenance and inspection.

(Confirm that charge lamp on the inverter is off, check the direct current voltage between P-N terminals and confirm it is less than 45V)

**Otherwise, there is a danger of electric shock.**

Make sure that only qualified persons perform maintenance, inspection, and part replacement. Before starting the work, remove metallic objects from your person (wristwatch, bracelet, etc.). Be sure to use tools protected with insulation.

**Otherwise, there is a danger of electric shock and/or injury.**

Please do not carry out insulation resistance (megger) and voltage proof test.

**Otherwise, there is a danger of electric shock and/or a possibility that the product will get damaged.**

**NOTE:**

Never disassemble / repair / modify the unit.

**Otherwise, there is a danger of electric shock and/or injury.**

### CAUTION

#### Installation:

Be sure not to let foreign matter such as wire clippings, spatter from welding, metal shavings, dust etc. enter the unit.

**Otherwise, there is a danger of fire.**

Be sure to fix the inverter to this product with an attached fixed screw.

**Otherwise, there is a danger of a connection error.**

Be sure to fasten the screws connecting the signal wire inside of this product. Check for any loosening of screws.

**Otherwise, there is a danger of a connection error.**

Be sure that all cable connector screws are tightened to the torque specified in the relevant manuals.

**Otherwise, tightening torque may result in malfunction.**

In order to prevent damage caused by static electricity, Please remove the static electricity of the body touch the nearby metal before touching this product.

**Otherwise, there is a possibility that the product will get damaged.**

Please do not carry out insulation resistance (megger) and voltage proof test.

**Otherwise, there is a danger of electric shock and/or a possibility that the product will get damaged.**

Be careful of the followings.

- When removing WJ-PB, do not pull the PROFIBUS DP cable.
- When mounting WJ-PB, be sure that the PROFIBUS DP cable is not pinched.
- When mounting WJ-PB, be careful about burrs of the break-outs on the inverter.

**Otherwise, there is a possibility that the product will get damaged.**

#### Wiring:

Be sure to fasten the screws so they will not come loose.

**Otherwise, there is a danger of a connection error.**

Be sure that all cable connector screws are tightened to the torque specified in the relevant manuals.

**Otherwise, tightening torque may result in malfunction.**

#### Operation:

Check rotary direction, abnormal motor noise and vibrations during operation.

**Otherwise, there is a danger of injury to personnel and/or machine breakage.**

Check the Inverter's EzSQ program and its interaction with the PROFIBUS Master before actually running it on the Inverter.

**Otherwise, there is a danger of injury to personnel and/or machine breakage.**

If an unexpected phenomenon happens, please do not touch the product, the inverter and cable.

**Otherwise, there is a danger of injury to personnel.**

## **1.1 Check at the time of purchase**

Make sure to treat the product carefully to prevent shock and vibration while unpacking and not to damage the connector to connect WJ-PB and a inverter.

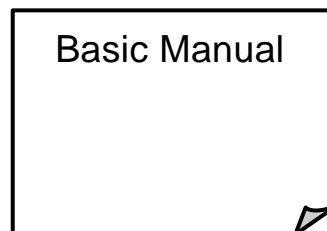
Confirm that the product is the one you ordered, that there are no defects, and that there was no damage during transportation.

Contents:

(1) WJ-PB (PROFIBUS Slave): 1 piece



(2) Basic Manual: 1 copy.



If you find any problems, contact your sales agent immediately.

Please keep the original packing box/material and return all of them to investigate them by our side.

## 1.2 Inquiry of the product and warranty for the product

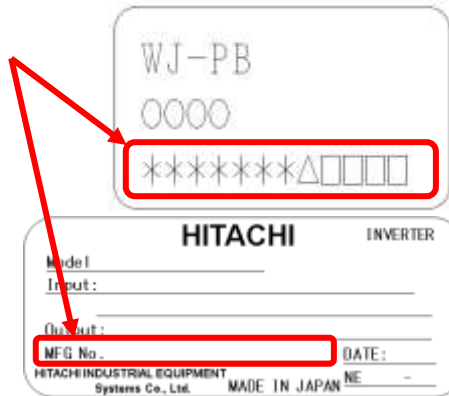
### 1.2.1 Required information for product inquiry

If an inquiry of breakage, a question, damage etc. is required, please relay the following information about WJ200 / WL200 and WJ-PB to the supplier that you ordered from or the nearest Hitachi Distributor.

- (1) Type (WJ200 / WL200 and WJ-PB)
- (2) Manufacturing number (MFG No.)

Please refer to the lateral specifications labels (the figure shows an example.) on the side.

- (3) Date of purchase
- (4) Contents of inquiry
  - Damaged parts and its condition etc.
  - Parts in question and their contents etc.



In order to shorten down time, utilizing a replacement unit is recommended.

### 1.2.2 Warranty of the product

The warranty period under normal installation and handling conditions shall be 2 years from the date of manufacture, or 1 year from the date of installation, whichever occurs first. The warranty shall cover the repair or replacement, at Hitachi's sole discretion, of ONLY the product that was installed.

Service in the following cases, even within the warranty period, shall be charged to the purchaser:

- Malfunction or damage caused by miss-operation or modification or improper repair
- Malfunction or damage caused by a drop after purchase and transportation
- Malfunction or damage caused by fire, earthquake, flood, lightening, abnormal input voltage, contamination, or other natural disasters

When service is required for the product at your work site, all expenses associated with field repair shall be charged to the purchaser.

Always keep this manual handy; please do not lose it. Please contact your Hitachi distributor to purchase replacement or additional manuals.



## **2.1 Outline of product**

WJ-PB is an interface option of PROFIBUS communication for WJ200 / WL200. WJ-PB allows controlling, monitoring and parameterization of WJ200 / WL200 via the PROFIBUS network.

PROFIBUS is an open, digital communication system that consists of PROFIBUS DP (for factory automation) and PA (process automation). PROFIBUS is anchored in the international standards IEC 61158 and IEC 61784.

WJ-PB supports the application profile PROFIdrive version 4.2. This profile defines device behavior and the access procedure to drive data for electric drives on PROFIBUS or PROFINET.

### (1) PROFIBUS DPV1

WJ-PB supports PROFIBUS DPV1.

DPV1 is the extension of DPV0 that provides the basic functionality of DP.

### (2) Cyclic communication

The PROFIBUS master (class 1, 2) manages the PROFIBUS network, and performs slave status monitoring and data exchange with the slaves.

The format of communication data conforms to PROFIdrive.

Output data (to slave): operation command, target value, etc.

Input data (to master): operation status, present value, etc.

### (3) Setting the inverter parameters

You can set the inverter parameters by using acyclic communication of the PROFIBUS (MS1 / MS2).

The procedure to access parameters conforms to PROFIdrive.

## 2.2 About optional correspondence of WJ200 / WL200

You can attach WJ-PB to all models of WJ200 / WL200. However, it may not support WJ-PB depending on the product version. Please refer to the inverter specifications label on the side and check its version (it is mentioned in the top right corner) on specifications label. (The figure shows an example.)

WJ200/WL200 of the version listed in the table below is compatible with WJ-PB.

Series	Version
WJ200	Ver.2.4 or later
WL200	Ver.1.0E or later

Please confirm the version.

**HITACHI**

**INVERTER**

**Model :** \_\_\_\_\_ **Ver. 2.4**

**Input :** \_\_\_\_\_

**Output :** \_\_\_\_\_

**MFG No.** \_\_\_\_\_ **DATE :** \_\_\_\_\_

**HITACHI INDUSTRIAL EQUIPMENT** **MADE IN JAPAN** **NE -**  
**Systems Co., Ltd.**

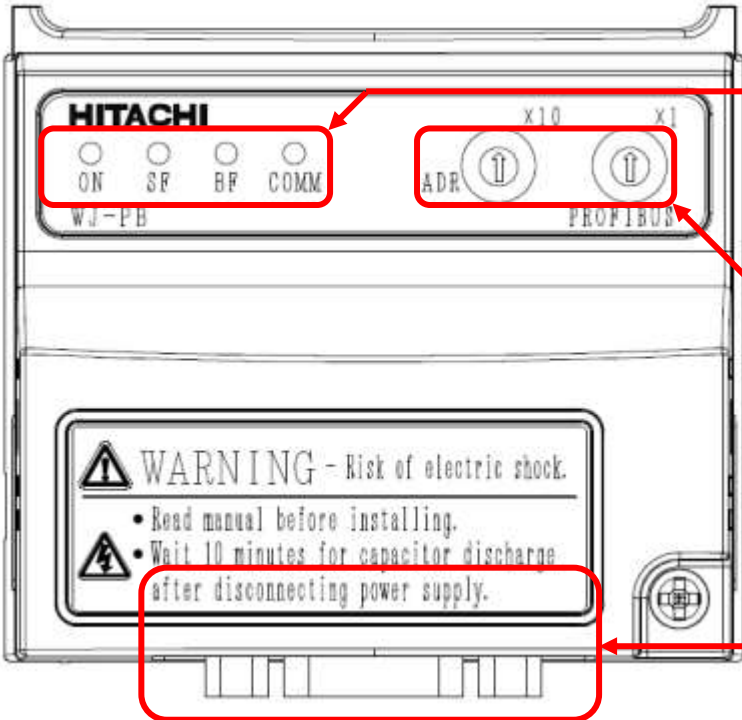
## 2.3 About limitations of using WJ-PB

When you use WJ-PB, be aware of the following limitations:

- Modbus communication is not usable.
- Functional safety (STO) certification of the inverter becomes ineffective.

### 3.1 Appearance and each part name

The following is the external description of WJ-PB. For more information about LEDs and connectors, please refer to the page mentioned.



**LEDs:**  
These LEDs describe PROFIBUS states.  
From left side:  
- ON  
- SF (System failure)  
- BF (Bus failure)  
- COMM

**Rotary switches:**  
You need to set a node address of slave in the PROFIBUS network using these switches. The setting range is 00-99.  
**NOTE:**  
Please set them after checking that the power supply is OFF.

**Connectors:**  
You can connect the option to the PROFIBUS network via these connectors.  
**NOTE:**  
Please fix the connected PROFIBUS cables to prevent mechanical failure by the vibration/gravity.

## 3.2 Summary of all parts

### 3.2.1 LED

The summaries of LED, the setting switch and the connector are as follows.

Please refer to “9.1 Status indicator explanations and error handling” for details.

Name	Color	Description
ON	Green	ON : Power on OFF : Power off
SF (System failure)	Red	ON Error about PROFIBUS has occurred in WJ-PB. OFF : No error about PROFIBUS has occurred in WJ-PB.
BF (Bus failure)	Red	ON : WJ-PB isn't connected to master yet. Blinking: WJ-PB is already connected to master, but WJ-PB doesn't communicate with master by the set telegram. OFF : WJ-PB is communicating with master by the set telegram.
COMM	Green	ON : WJ-PB is communicating with master by the set telegram. OFF : WJ-PB doesn't communicate with master by the set telegram.

### 3.2.2 Rotary switches

These switches are used to set a node address of slaves in the PROFIBUS network.

You can set a node address using two rotary switches. The left is capable of setting the tens digit and the right is capable of setting the ones digit. The setting range is 00-99.

Please refer to Chapter 8 for details.

### 3.2.3 Connector

Name	Description
PROFIBUS connector	This is connected to the PROFIBUS network.
Grounding cable	Wire the ground cable. NOTE: Please be sure to do it.

Please refer to Chapter 5 'Wiring, Connecting' for the specifications and the wiring.

## 4.1 Before attaching WJ-PB

First of all, please confirm that the inverter's main power supply is OFF. Next, please confirm that the 4-digit 7-segment display turns off the light.

Perform the main circuit wiring of the power line (power supply, motor, grounding, BRD), and do the control circuit wiring of the signal line. After wiring on main and control circuit is completed, please confirm that the inverter works normally before attaching WJ-PB.

Please refer to Chapter 2 'Inverter Mounting and Installation' of the WJ200 / WL200 instruction manual for the wiring.

## 4.2 Attachment procedure

The connection procedure of WJ-PB as follows.

(An example: in the case of WJ200-004LF)

(Main circuit electric wiring and the control circuit electric wiring are omitted.)

The initial state.

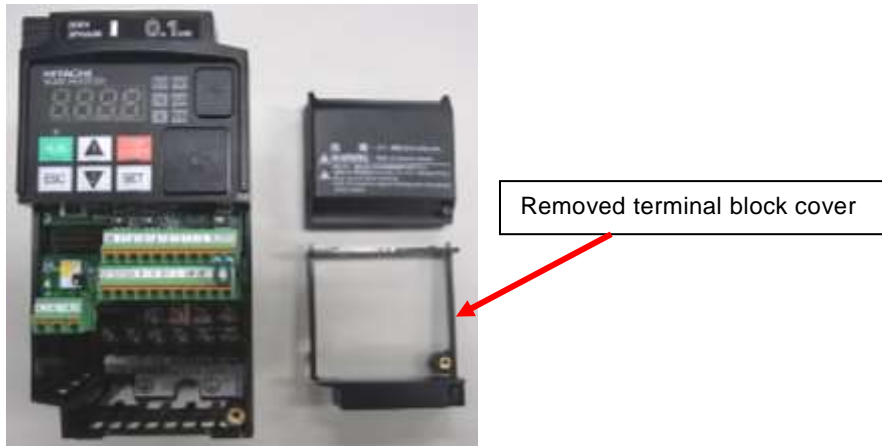


Please remove the optional board cover.



## Chapter 4 Attachment

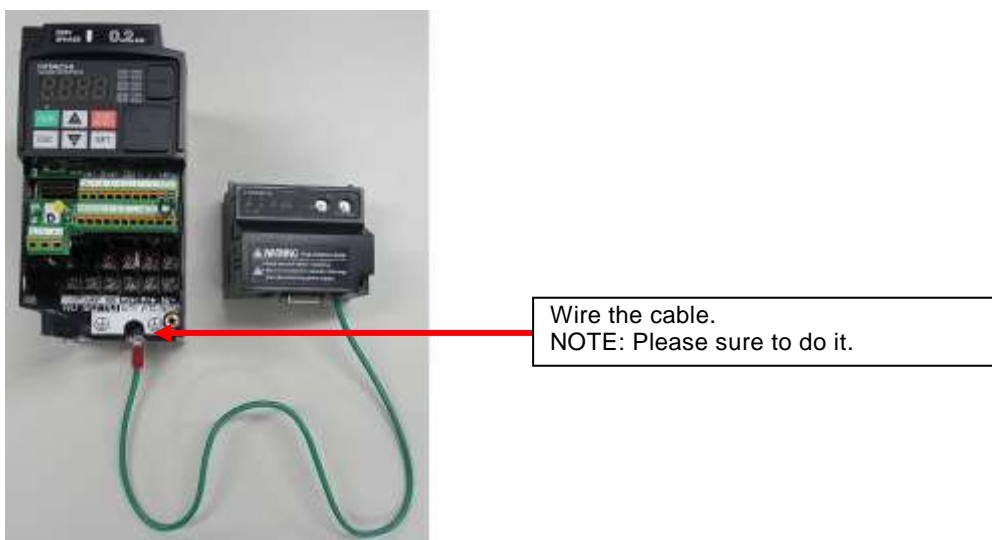
Please remove the terminal block cover.



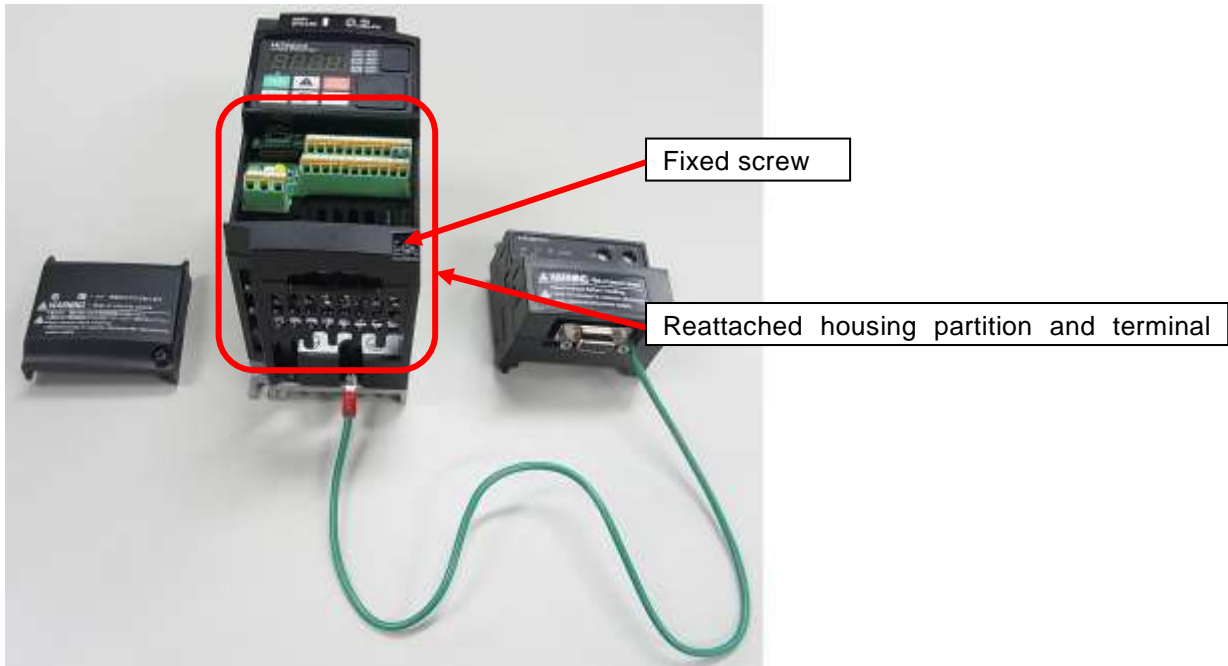
Please remove the housing partition.



Please wire the grounding cable.



Reattach the housing partition and terminal cover. (Option board cover is not used in this case.)



Please put the all wires beneath this option properly (to prevent rising by those wiring in future.)

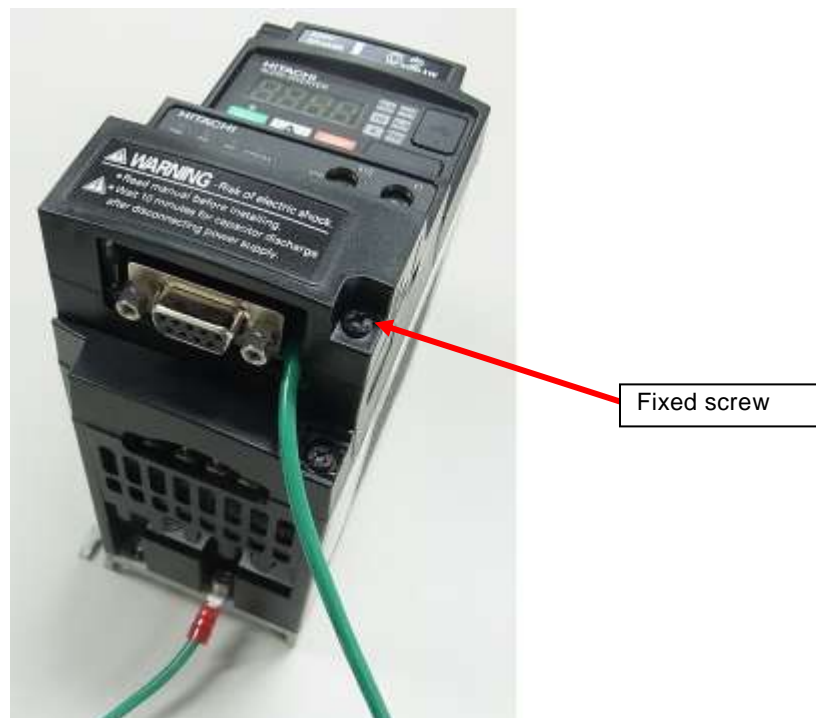
NOTE: in above pictures, the length of ground cable is not suitable. To avoid pulling the cable unintentionally, you need to cut the ground cable to an appropriate length for the distance to the inverter's grounding terminal and the size of the terminal block, and crimp the cable to the crimp terminal before using.

## Chapter 4 Attachment

Lift the WJ-PB, and please attach the installation connector (for WJ-PB) carefully and slowly from the front of the installation connector for the option of the WJ200 / WL200. Be careful to mate the connectors straight and not to break the hooks



Fix the option with the screws.



Please check the connection state of the WJ-PB and the WJ200 / WL200 inverter via the connector.

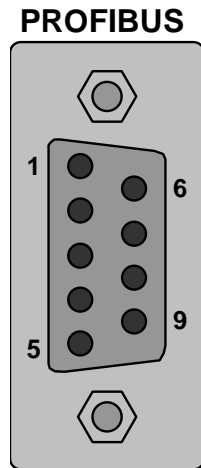
When the connection state of the connector is bad, the Option error (inverter communication error, code: E6\*, please refer to Chapter 9) may occur after the time of power supply injection of the inverter at any time. Or, because the inverter cannot recognize an option, normal communication may not be carried out.



## 5.1 Specification of PROFIBUS connector

The connector type is D-sub 9 pin female type.

The Appearance and the wiring are the following.



Pin number	Description
1	NC
2	NC
3	B-Line
4	NC
5	GND
6	+ 5V DC
7	NC
8	A-Line
9	NC

+5V DC and GND are used for bus termination. Some devices, like optical transceivers (RS-485 to fiber optics) might require external power supply from these pins. In normal applications, PROFIBUS-DP is only used A-Line and B-Line.

## 5.2 Specification of PROFIBUS cable

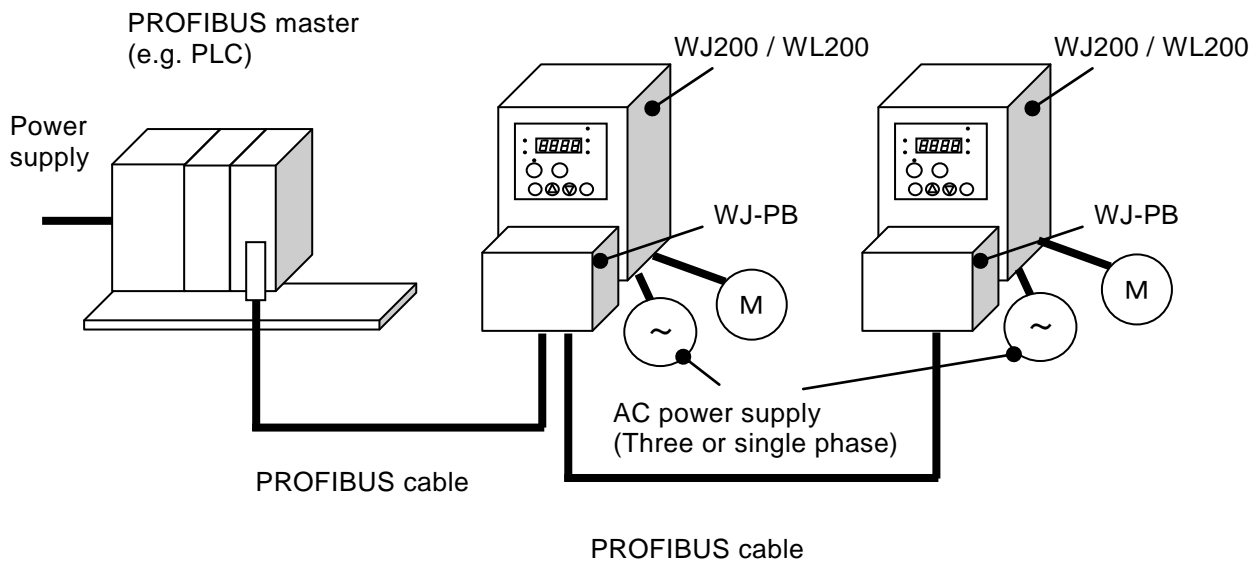
The bus cable is specified in EN 50170 part 8-2 as "Cable Type A", and should comply with the parameters in the table below. Cable type B, which is also described in EN 50170, is outdated and should no longer be used.

Parameter	Cable type A
Characteristic impedance	135 to 165 $\Omega$ at a frequency of 3 to 20MHz
Operating capacity	< 30 pF/m
Loop resistance	$\leq$ 100 $\Omega$ /km
Core diameter	> 0.64 mm
Core cross-section (*)	> 0.34mm <sup>2</sup>

(\*) The cable cross-sections used should be compatible with the mechanical specifications of the bus interface connector.

## 5.3 A system configuration of the PROFIBUS

The following sketch is an example of PROFIBUS system configuration.



- (1) When you wire the signal line to the PROFIBUS connection connector, take the connector off WJ-PB and please wire it in the state that cut the communication power supply. WJ-PB may be damaged by false contact.
- (2) Network cables should be fixed without tension. Cables fixed under tension have the potential of causing a communication fault by removing a connector.
- (3) The communication line and the power line should wire the position that they separated as much as possible. When the position of the power line is near the communication line, it may not communicate by a noise.
- (4) Ensure external emergency stop measures are taken to stop the inverter, in the event of a network fault.
  - (a) Break the power supply of the Inverter when the network master detects a communication fault.
  - (b) When the master detects a communication fault, turn on the intelligent input terminal which would be allocated (FRS), (RS) and/or (EXT) function.
  - (c) Setting command P045 (Inverter action on communication error). Regarding this setting, the inverter is tripped, deceleration or free run stop when it detects a communication fault by itself. (Factory initialization of command P045 (Inverter action on communication error) is tripped.  
e.g. WJ200 / WL200 becomes the trip when a master detects a communication fault when WJ200 / WL200 runs by an order from the PROFIBUS.)

### -About SAFETY-

When WJ200 / WL200 is used with Dip-Switch in the position to activate functional safety and communication master unit detects the communication error, please turn "OFF (to interrupt the output)" GS1 signal (intelligent input #3) and GS2 (intelligent input #4.) It is to be noticed that approval by third party for "STO" function is void even if the safety function is activated with Dip-Switch in the position to select functional safety (STO) when WJ-PB is attached to WJ200 / WL200.

For more details, please refer to the instruction manual of WL200 / WL200.

## **6.1 Use considerations**

Check the Inverter settings for proper Inverter behavior before actually operating the Inverter remotely via the network.

The product will be used to control an adjustable speed drive connected to high voltage sources and rotating machinery that is inherently dangerous if not operated safely. Interlock all energy sources, hazardous locations, and guards in order to restrict the exposure of personnel to hazards. The adjustable speed drive may start the motor without warning. Signs on the equipment installation must be posted to this effect.

A familiarity with auto-restart settings is a requirement when controlling adjustable speed drives. Failure of external or ancillary components may cause intermittent system operation, i.e., the system may start the motor without warning or may not stop on command. Improperly designed or improperly installed system interlocks and permissions may render a motor unable to start or stop on command.

## **6.2 Setup of the WJ200 / WL200 for commissioning**

Before commissioning, prepare the Inverter and WJ-PB by following the setting example below.

### **6.2.1 Setting of the inverter mode (When WJ200 / WL200 is connected to standard IM.)**

Set the Inverter mode to Std. IM by first setting b171 = 1 and then b180 = 1.

When WJ200 / WL200 is connected to PM, you need to set b171 = 3.

### **6.2.2 Initialization of the inverter**

First of all, please set b084 to 04(Clears trip history and initializes all parameters and EzSQ program), next set b085 to 01(area A), and then set b094 to 00(All parameters), and next set b180 to 01(Perform initialization), and then initialization of the inverter will be started.

### **6.2.3 Constant Torque mode/Variable Torque mode selection**

In case of WJ200, Set b049 to 00 (b049 = 00: Constant Torque mode).

In case of WL200, you don't need to set b049 because WL200 supports only Constant Torque mode and doesn't support b049.

After the above-mentioned setting is completed, please set the parameter A001, A002, A004, A038, A039, A093, b031, C001 - C007, C042, C043, C102, P044, P045, P160 - P179 and P180 according to the table in "7.2: Parameter setting of WJ200 / WL200". When you set parameters with Operator or PC(ProDriveNext), you need to turn OFF the inverter. After the power supply of the inverter becomes OFF, please turn ON the inverter and check that WJ-PB communicates by PROFIBUS.

Please refer to data example of the WJ200 / WL200 operating in the PROFIBUS communication from the next page.

## 6.3 Operate with frequency command [Hz]

Please refer to the instruction manual of the PROFIBUS master about the way of using it.

For a detailed description of the PROFIBUS communication, please refer to Chapter 8. The following is an example of operation with the Standard telegram 1 in the PROFIBUS communication and setting A004 to 50 [Hz].

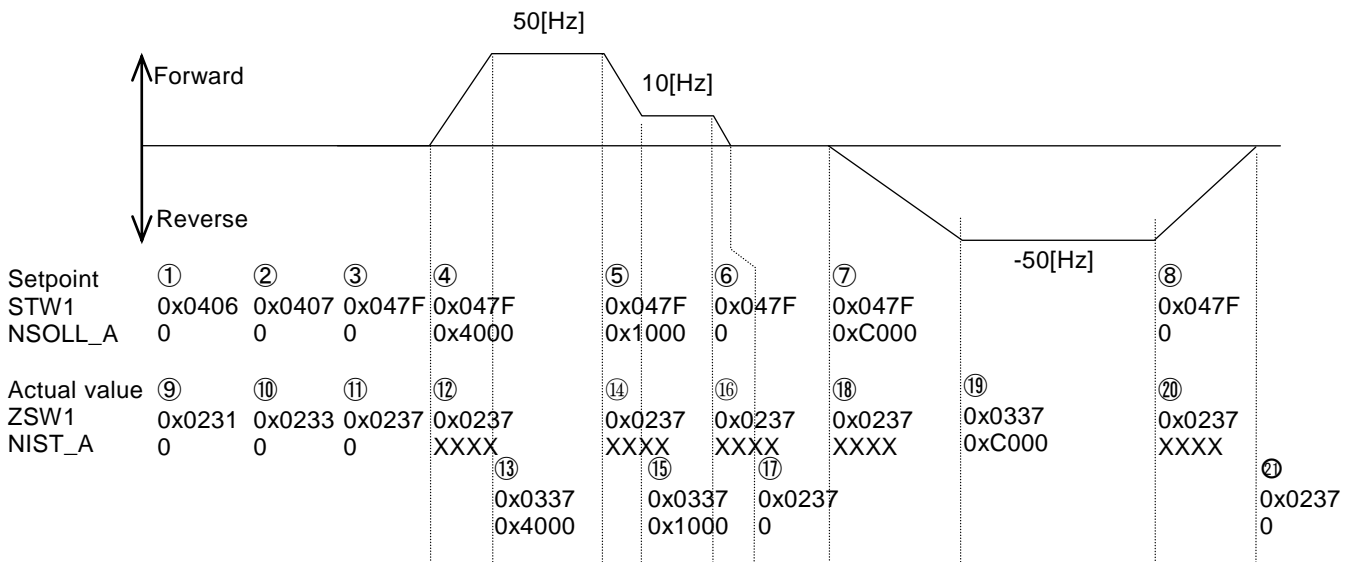
STW1 is the control word. ZSW1 is the status word. NSOLL\_A means the setting of output frequency. NIST\_A means the actual output frequency.

[Setpoint (Master -> Slave)]

- ① Setting STW1 to 0x0406.
- ② Setting STW1 to 0x0407.
- ③ Setting STW1 to 0x047F.
- ④ Setting NSOLL\_A to 0x4000 (100%).
- ⑤ Setting NSOLL\_A to 0x1000 (25%).
- ⑥ Setting NSOLL\_A to 0x0 (0%).
- ⑦ Setting NSOLL\_A to 0xC000 (-100%).
- ⑧ Setting NSOLL\_A to 0x0 (0%).

[Actual value (Slave -> Master)]

- ⑨ Stopping state, PROFIdrive transition to "Ready For switching On".
- ⑩ Stopping state, PROFIdrive transition to "Switching On".
- ⑪ Driving with 0x0 (0% : 0[Hz]) state, PROFIdrive transition to "Operation".
- ⑫ Accelerating in forward direction, "XXXX" indicates NIST\_A during acceleration.
- ⑬ Driving at a constant speed state, NIST\_A is equal to 0x4000 (100% : 50[Hz]).
- ⑭ Deceleration state, "XXXX" indicates NIST\_A during deceleration.
- ⑮ Driving at a constant speed state, NIST\_A is equal to 0x1000 (25% : 12.5[Hz]).
- ⑯ Deceleration state, "XXXX" indicates NIST\_A during deceleration.
- ⑰ Driving at a constant speed state, NIST\_A is equal to 0x0 (0% : 0[Hz]).
- ⑱ Accelerating in reverse direction, "XXXX" indicates NIST\_A during deceleration.
- ⑲ Driving at a constant speed state, NIST\_A is equal to 0xC000 (-100% : -50[Hz]).
- ⑳ Deceleration state, "XXXX" indicates NIST\_A during deceleration.
- ㉑ Driving at a constant speed state, NIST\_A is equal to 0x0 (0% : 0[Hz]).



## 7.1 Installation the GSD File

It is necessary to install the GSD File to your PC tool (Configuration tool) of PROFIBUS master to use WJ-PB. GSD file is a file that Contains unique information of the PROFIBUS slaves.

Please inquire to the nearest business contact about the GSD file.

## 7.2 Parameter settings of WJ200 / WL200

WJ-PB needs the parameter settings of WJ200 / WL200, which is included in the following table. Concerning the operating of the system, it is necessary to refer to the instruction manual of the inverter and the QRG of this option. Please perform appropriate setting as needed.

### Parameter settings

Function code	Name	Value and description	Default	Run mode edit	High level access mode
A001	Frequency source	04: option	02	×	×
A002	Run command source	04: option	02	×	×
A004	Maximum frequency	Optional Settable from the base frequency to 400(580) Hz	60.0	×	×
A038	Jog frequency	Optional Defines limited speed for jog, range is from start frequency to 9.99 Hz	6.00	○	○
A039	Jog stop mode	Optional Define how end of jog stops the motor; six options: 00 : Free-run stop (invalid during run) 01 : Controlled deceleration (invalid during run) 02 : DC braking to stop (invalid during run) 03 : Free-run stop (valid during run) 04 : Controlled deceleration (valid during run) 05 : DC braking to stop(valid during run)	04	×	○
A093	Deceleration time (2)	Optional Duration of 2nd segment of deceleration, range is: 0.00 to 3600 sec.	10.00	○	○
b031	Software lock mode selection	10: High level access including b031	01	×	○
C001 - C007	Input [1-7] function	Except 06: JG		×	○

## Chapter 7 Setting

Function code	Name	Value and description	Default	Run mode edit	High level access mode
C005	Input [5] function	09: 2CH, Frequency output uses 2nd-stage deceleration value.	09	×	○
C006	Input [6] function	83: HLD, Frequency output uses 2nd-stage acceleration and deceleration values.	18	×	○
C042	Frequency arrival setting for acceleration	Optional Sets the frequency arrival setting threshold for the output frequency during acceleration, range is 0.0 to 400.0(580.0) Hz	0.0	×	○
C043	Frequency arrival setting for deceleration	Optional Sets the frequency arrival setting threshold for the output frequency during deceleration, range is 0.0 to 400.0(580.0) Hz	0.0	×	○
C102	Reset selection	03: Clear the memory only related to trip status	00	○	○
P044	Communication watchdog timer (for option)	Optional Set range is 0.00 to 99.99s	1.00	×	×
P045	Inverter action on communication error (for option)	Optional 00 : Tripping 01 : Tripping after decelerating and stopping the motor 02 : Ignoring errors 03 : Stopping the motor after free-running 04 : Decelerating and stopping the motor	00	×	×
P160 - P169	Option I/F command register to write 1 to 10	Optional 0x0000 to 0xFFFF	0x0000	○	○
P170 - P179	Option I/F command register to read 1 to 10	Optional 0x0000 to 0xFFFF	0x0000	○	○
P180	PROFIBUS Node address	Optional 0. to 125.	0	×	×
P181	PROFIBUS Clear mode setting	Not use	0	×	×
P182	PROFIBUS Map selection	Not use	00	×	×
P200	Register Mapping setting (WJ200 Ver.3.0 or later)	00 : Standard Mapping function disabled	00	×	○

NOTE: You need to set b037 (display limited) to 00 (all parameters displayed).

### 7.2.1 A001 (Frequency source)

You need to set A001 to 04 in the case of operation WJ200 / WL200 using the PROFIBUS communication.

### 7.2.2 A002 (Run command source)

You need to set A002 to 04 in the case of operation WJ200 / WL200 using the PROFIBUS communication.

### 7.2.3 A004 (Maximum frequency)

The range of frequency that you can monitor or set is from -100% to 100% in PROFIdrive. You need to set base frequency.

### 7.2.4 A038 (Jog frequency)

WJ-PB supports Jog mode in Operation status of PROFIdrive. You need to set jog frequency.

### 7.2.5 A039 (Jog stop mode)

You need to set how the inverter stops. "00" is same as "03" (Free run stop), "01" is same as "04" (Controlled deceleration), "02" is same as "05" (DC braking to stop).

### 7.2.6 A093 (Deceleration time (2))

You need to set deceleration time when you use quick stop and C005 to 09 (2ch).

### 7.2.7 b031 (Software lock mode selection)

You need to set b031 to 10 (changeable mode during driving), if you rewrite the mutable parameters of the WJ200 / WL200 during operation by the PROFIBUS communication. If you have not already set to 10 (changeable mode during driving), it cannot be rewritten even after the rewrite of the parameters.

### 7.2.8 C001 - C007 (Input [1-7] function)

You need not to set C001 - C007 to 06 (JG). If you set C001 - C007 to 06 (JG), Jog mode doesn't work normally.

### 7.2.9 C005 (Input [5] function)

You need to set C005 to 09 (2CH), if you use the settings of the two-stage acceleration and deceleration during the deceleration in the Quick stop of CiA402. WJ200 / WL200 normally decelerates when you use quick stop of the two-stage acceleration and deceleration without the above setting.

### 7.2.10 C006 (Input [6] function)

You need to set C006 to 83 (HLD), if you use the freeze ramp generator function that STW1 bit5 is OFF. If you don't set C006 to 83 and STW1 bit5 is OFF, output frequency isn't freeze.

### 7.2.11 C042 (Frequency arrival setting for acceleration)

When the output frequency is over the frequency that is set to C042 during acceleration, ZSW1 bit10 becomes ON. If you set C042 to 0, ZSW1 bit10 doesn't become ON.

### 7.2.12 C043 (Frequency arrival setting for deceleration)

When the output frequency is over the frequency that is set to C043 during deceleration, ZSW1 bit10

becomes ON. If you set C043 to 0, ZSW1 bit10 doesn't become ON.

### 7.2.13 C102 (Reset selection)

You need to set 03 (release at tripping) to C102. This parameter decides the WJ200 / WL200's action when the reset terminal (RS) is ON.

If you set C102 to 00 (release at ON), 01 (release at OFF), or 02 (enable at tripping), WJ-PB is reset at reset terminal (RS) input and WJ200 / WL200 displays E60 (option error). If you set 03 (clear tripping state only), WJ-PB is not reset terminal (RS) input and WJ200 / WL200 can continue driving after released from tripping.

### 7.2.14 P044 (Communication watchdog timer (for option))

You need to set P044 to the communication watchdog timer of PROFIBUS. If you set P044 to 0, WJ-PB doesn't monitor non communication.

### 7.2.15 P045 (Inverter action on communication error (for option))

You need to set P044 to inverter action on communication error.

### 7.2.16 P160 - P169 (Option I/F command register to write 1 to 10)

You need to set P160 - P169 to Modbus register no when you use telegram 103, 104 or 105. Please refer to "8.8.2 WJ-PB telegram 103 to 105" for details.

### 7.2.17 P170 - P179 (Option I/F command register to read 1 to 10)

You need to set P170 - P179 to Modbus register no when you use telegram 103, 104 or 105. Please refer to "8.8.2 WJ-PB telegram 103 to 105" for details.

### 7.2.18 P180 (PROFIBUS Node address)

You need to set P180 to PROFIBUS node address. Please refer to "8.2 Node address" for details.

### 7.2.19 P181 (PROFIBUS Clear mode setting)

WJ-PB doesn't use this parameter.

### 7.2.20 P182 (PROFIBUS Map selection)

WJ-PB doesn't use this parameter.

### 7.2.21 P200 (Register Mapping setting)

This parameter exists in WJ200 Ver.3.0 or later.

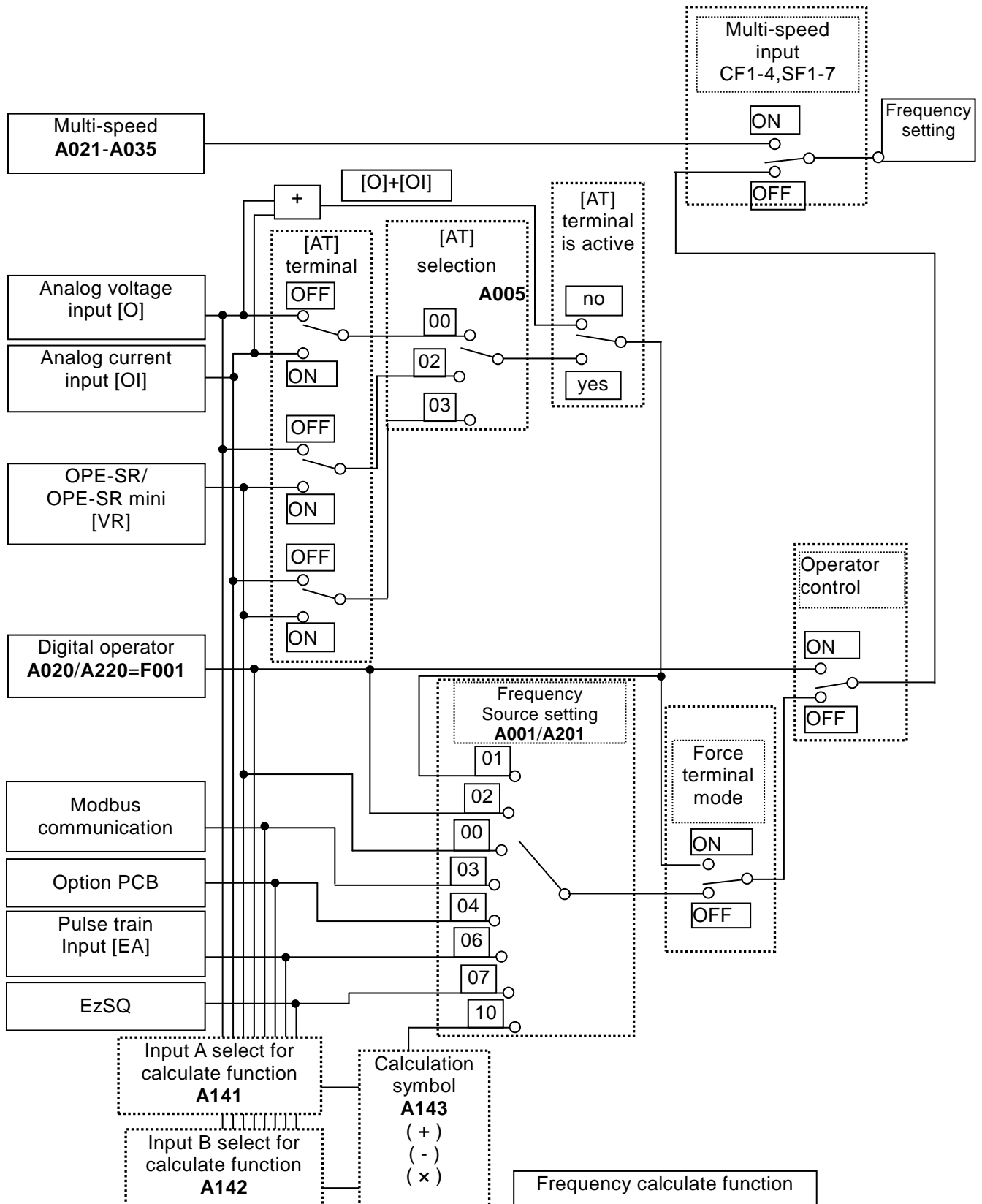
You need to set P200 to 00 when you use WJ-PB.



### 7.3 Concerning the selecting of the frequency source

Showing below an association map of the frequency source choice of the WJ200 / WL200 series inverter (include WJ-PB). Please refer to an instruction manual of the WJ200 / WL200 about the detailed contents except WJ-PB.

NOTE: Modbus communication is not usable. WL200 doesn't support Pulse train input [EA].



## 8.1 PROFIBUS

Specifications for WJ-PB are the following.

Item	Specification
PROFIBUS protocol	PROFIBUS DPV0 PROFIBUS DPV1
Unit type	PROFIBUS DP Slave
Supported communication	MS0 MS1 MS2
Supported service on MS0	Data_Exchange.req/cnf Rd_Inp.req/cnf Rd_Outp.req/cnf Set_Prm.req/cnf Chk_Cfg.req/cnf Slave_Diag.req/cnf Global_Control.req/cnf Get_Cfg.req/cnf
Supported service on MS1 / MS2	Initiate.rsp Abort.ind/rsp Read.rsp Write.rsp
Function	Freeze mode Sync mode Automatic baudrate
Baud rate	9.6 kbit/s 19.2 kbit/s 45.45 kbit/s 93.75 kbit/s 187.5 kbit/s 500 kbit/s 1.5 Mbit/s 3 Mbit/s 6 Mbit/s 12 Mbit/s
Device ID	0x0EFD
GSD file	HITA0EFD.gsd

## 8.2 Node address

There are two ways of setting the node address to WJ-PB.

- (1) The rotary switches
- (2) P180 of WJ200 / WL200 parameters

(1) is given priority.

When you set the rotary switches within the range from 01 to 99, the value is addressed.

When you set the rotary switches 00 and P180 is within the range from 1 to 125, the value of P180 is addressed.

Otherwise 126 is addressed.

The rotary switches and P180 are read at power-on. The node address isn't changed even if you change the rotary switches or P180 during power-on.

You need to set this node address to the same value that you set the master by the configuration tool. If not, WJ-PB can't communicate.

## 8.3 PROFIdrive

Specifications for PROFIdrive of WJ-PB are the following.

Item	Specification
Version	4.2
Application class	AC1 (Standard Drive)
Telegram	Standard telegram 1 WJ-PB telegram 103 (same as PPO3 of PROFIdrive version 2) WJ-PB telegram 104 (same as PPO4 of PROFIdrive version 2) WJ-PB telegram 105 (like PPO5 of PROFIdrive version 2)
Configuring of telegram	From P160 to P179 of WJ200 / WL200 parameters
Operating mode	Speed control mode
Jogging	Only jogging 1 is supported.

The size of send and receive data of each telegram are the following.

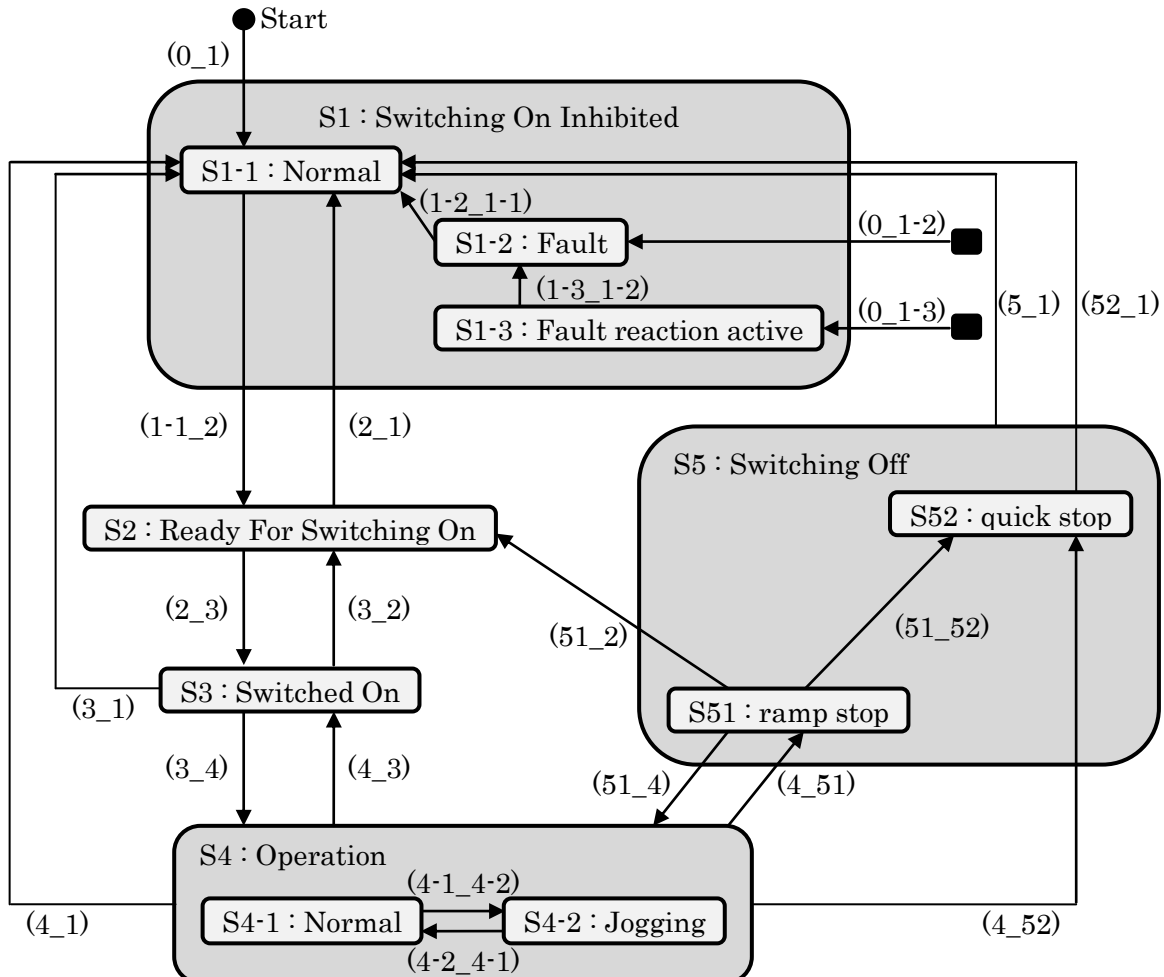
WJ-PB telegrams are the device specific telegrams and compatible with PPOs of PROFIdrive version 2. However, WJ-PB telegram doesn't have PKW (parameter area) and has only PZD (process data area).

Telegram	Setpoint (from master to WJ-PB)	Actual value (from WJ-PB to master)
Standard telegram 1	2 word	2 word
WJ-PB telegram 103 (same as PPO3 of PROFIdrive version 2)	2 word	2 word
WJ-PB telegram 104 (same as PPO4 of PROFIdrive version 2)	6 word	6 word
WJ-PB telegram 105 (like PPO5 of PROFIdrive version 2)	10 word	10 word

Please refer to "8.8 Telegram" for details of each telegram.

## 8.4 State machine on PROFdrive

### 8.4.1 State diagram



Note : The black rounded rectangles means every states.

Each transition is the following. Upper transition is given priority.

Transition source	Transition	Condition
From initial state	(0_1)	Power on, or reset.
In case of error.	(0_1-3)	When WJ200 / WL200 is on the operation and either of the following conditions are satisfied. - The communication error is occurred between WJ-PB and WJ200 / WL200. - The communication timeout error that it has been the time of P044 since previous communication occurs on PROFIBUS and P045 = 1.
	(0_1-2)	When except the above error occurs.
From S1-1	(1-1_2)	When all of the following conditions of STW1 are satisfied. Bit0 = OFF, Bit1 = ON, Bit2 = ON
From S1-2	(1-2_1-1)	When STW1 Bit7 becomes from OFF to ON and keeps ON for at least 20ms.
From S1-3	(1-3_1-2)	The output frequency of WJ200 / WL200 is 0 [Hz].
From S2	(2_1)	When either of the following conditions of STW1 is satisfied. Bit1 = OFF, Bit2 = OFF

Transition source	Transition	Condition
	(2_3)	STW1 Bit0 = ON
From S3	(3_1)	When either of the following conditions of STW1 is satisfied. Bit1 = OFF, Bit2 = OFF
	(3_2)	STW1 Bit0 = OFF
	(3_4)	STW1 Bit3 = ON
From S4	(4_1)	STW1 Bit1 = OFF
	(4_52)	When either of the following conditions are satisfied. - STW1 Bit 2 = OFF. - STW1 Bit 0 = ON and Bit 4 = OFF.
	(4_51)	STW1 Bit0 = OFF
	(4_3)	STW1 Bit3 = OFF
From S4-1	(4-1_4-2)	When all of the following conditions are satisfied. - The output frequency of WJ200 / WL200 is 0 [Hz]. - All of STW1 Bit 4- 6 are OFF. - STW1 Bit 8 is ON
From S4-2	(4-2_4-1)	When all of the following conditions are satisfied. - The output frequency of WJ200 / WL200 is 0 [Hz]. - Either of STW1 Bit 4- 6 is ON. - STW1 Bit 8 is OFF
From S5	(5_1)	STW1 Bit1 = OFF
From S51	(51_52)	STW1 Bit2 = OFF
	(51_2)	When either of the following conditions are satisfied. - The output frequency of WJ200 / WL200 is 0 [Hz]. - STW1 Bit 3 = OFF.
	(51_4)	STW1 Bit0 = ON
From S52	(52_1)	When either of the following conditions are satisfied. - The output frequency of WJ200 / WL200 is 0 [Hz]. - STW1 Bit 3 = OFF.

### 8.4.2 Description each state

State		Description
S1	Switching On Inhibited	Inverter is stopping.
S1-1	Normal	Error don't occur in inverter.
S1-2	Fault	No error occurs in inverter.
S1-3	Fault reaction active	WJ-PB detects an error, and inverter is during deceleration. When inverter stops, WJ-PB makes inverter trip and changes the state to S1-2.
S2	Ready For Switching On	Inverter is stopping.
S3	Switched On	Inverter is stopping.
S4	Operation	Inverter can be operated.
S4-1	Normal	Inverter is running normally.
S4-2	Jogging	Inverter is running by jogging.
S5	Switching Off	Inverter is decelerating.
S51	ramp stop	Inverter is decelerating by ramp stop.
S52	quick stop	Inverter is decelerating by quick stop (2ch function of WJ200 / WL200).

The state S\*-\* aren't defined at the figure of General State Diagram in the PROFIdrive specification.

## 8.5 STW1 (Control word)

The size of STW1 is 16 bits.

The specification of each bit is the following.

Bit	Value	Significance	Description
0	1	ON	When the state is in "Ready For Switching On", the state is changed to "Switched On". When the state is in "ramp stop", the state is changed to "Operation".
	0	OFF (OFF 1)	When the state is in "Switched On", the state is changed to "Ready For Switching On". When the state is in "Operation", the state is changed to "ramp stop" and inverter decelerates by ramp stop.
1	1	No Coast Stop (no OFF 2)	When the state is in "Switching On Inhibited" and STW1 bit2 is ON, the state is changed to "Ready For Switching On".
	0	Coast Stop (OFF 2)	When the state is in "Ready For Switching On" or "Switched On", the state is changed to "Switching On Inhibited". When the state is in "Operation" or "Switching Off (ramp stop or quick stop)", the state is changed to "Switching On Inhibited" and inverter stops by coast stop.
2	1	No Quick Stop (no OFF 3)	When the state is in "Switching On Inhibited" and STW1 bit1 is ON, the state is changed to "Ready For Switching On".
	0	Quick Stop (OFF 3)	When the state is in "Ready For Switching On" or "Switched On", the state is changed to "Switching On Inhibited". When the state is in "Operation" or "ramp stop", the state is changed to "quick stop" and inverter decelerates by 2ch function of WJ200 / WL200. If C005 isn't 2ch, inverter decelerates by ramp stop.
3	1	Enable Operation	When the state is in "Switched On", the state is changed to "Operation".
	0	Disable Operation	When the state is in "ramp stop", the state is changed to "Ready For Switching On". When the state is in "quick stop", the state is changed to "Switching On Inhibited".
4	1	Enable Ramp Generator	The output frequency is set Speed Setpoint A (NSOLL_A) and inverter accelerates.
	0	Reset Ramp Generator	The output frequency is set 0 and inverter runs by 0 [Hz]. When inverter is running and both this bit and bit 0 are changed from 1 to 0, inverter decelerates by 2CH function of WJ200 / WL200.
5	1	Unfreeze Ramp Generator	The output frequency isn't held.
	0	Freeze Ramp Generator	When C006 is HLD, the output frequency is held.
6	1	Enable Setpoint	The output frequency is set Speed Setpoint A (NSOLL_A).
	0	Disable Setpoint	The output frequency is set 0.
7	1	Fault Acknowledge (0 -> 1)	When this bit is changed from 0 to 1, errors are cleared.
	0	No significance	Do nothing.
8	1	Jog 1 ON	When the state is "Operation", the output frequency is 0 and bit4 - 6 are 0, inverter runs by jogging.
	0	Jog 1 OFF	When inverter runs by jogging, Inverter stops.

Bit	Value	Significance	Description
9	1	Jog 2 ON	Not supported
	0	Jog 2 OFF	
10	1	Control By PLC	Inverter can be controlled by PLC.
	0	No Control By PLC	Inverter can't be controlled by PLC.
11	1	Reverse	Inverter runs in reverse direction.
	0	Forward	Inverter runs in forward direction.
12 - 15			Reserved

Bit 11 is device specific.

## 8.6 ZSW1 (Status word)

The size of ZSW1 is 16 bits.

The specification of each bit is the following.

Bit	Value	Significance	Description
0	1	Ready To Switch On	When the state isn't "Switching On Inhibited", this bit is ON.
	0	Not Ready To Switch On	When the state is "Switching On Inhibited", this bit is OFF.
1	1	Ready To Operate	When the state is "Switched On", "Operation" or "Switching Off (ramp stop or quick stop)", this bit is ON.
	0	Not Ready To Operate	When the state is "Switching On Inhibited" or "Ready For Switching On", this bit is OFF.
2	1	Operation Enabled	When the state is "Operation", this bit is ON.
	0	Operation Disabled	When the state isn't "Operation", this bit is OFF.
3	1	Fault Present	When error occurs in inverter or WJ-PB, this bit is ON.
	0	No Fault	No error occurs in inverter or WJ-PB.
4	1	Coast Stop Not Activated (No OFF 2)	When STW1 bit1 is ON, this bit is ON.
	0	Coast Stop Activated (OFF 2)	When STW1 bit1 is OFF, this bit is OFF.
5	1	Quick Stop Not Activated	When STW2 bit1 is ON, this bit is ON.
	0	Quick Stop Activated (OFF 3)	When STW2 bit1 is OFF, this bit is OFF.
6	1	Switching On Inhibited	When the state is "Switching On Inhibited", this bit is ON.
	0	Switching On Not Inhibit	When the state isn't "Switching On Inhibited", this bit is OFF.
7	1	Warning Present	When warning occurs in inverter or WJ-PB, this bit is ON.
	0	No Warning	No warning occurs in inverter or WJ-PB.
8	1	Speed Error Within Tolerance Range	When the output frequency reaches the set frequency, this bit is ON.
	0	Speed Error Out Of Tolerance Range	When the output frequency doesn't reach the set frequency, this bit is OFF.
9	1	Control Requested	WJ-PB can accept data that is communicated by PROFIBUS.
	0	No Control Requested	WJ-PB can't accept data that is communicated by PROFIBUS.
10	1	f Or n Reached Or Exceeded	When the output frequency reaches or exceeds the set frequency, this bit is ON. This bit is same as FA2 of WJ200 / WL200. You need to set C042 and C043.

Bit	Value	Significance	Description
	0	f Or n Not Reached	When the output frequency doesn't reach and exceed the set frequency, this bit is ON. This bit is same as FA2 of WJ200 / WL200. You need to set C042 and C043.
11 - 15			Reserved

### 8.7 NSOLL\_A / NIST\_A

NSOLL\_A is Speed setpoint A, means the setting of output frequency. Inverter runs this setting at not jogging but normal operation. When inverter runs at jogging, inverter runs not NSOLL\_A but A038 of WJ200 / WL200 parameter.

NIST\_A is Speed actual value A, means the actual output frequency. This value means the actual output frequency at both normal and jogging operations.

The size of these is signed 16 bits data. The sign means direction. The positive value means forward, the negative value means reverse. However, the actual direction depends on both the sign of NSOLL\_A and STW1 bit11.

NSOLL_A \ STW1 bit11	ON	OFF
	Positive	Reverse
Negative	Forward	Reverse

The data type of these is N2. The value of N2 means the following.

Value	Significance
-32768 (0x8000)	-200 %
-32767 ~ -1 (0x8001 ~ 0xFFFF)	-199.993896484375 % ~ -0.0061 %
-16384 (0xC000)	-100 %
0 (0x0)	0 %
16384 (0x4000)	100 %
1 ~ 32766 (0x1 ~ 0x7FFE)	0.0061 % ~ 199.98779296875 %
32767 (0x7FFF)	199.993896484375 %

The base frequency of these is set A004 of WJ200 / WL200 parameter.

[Example]

When A004 = 60.0 [Hz] and NSOLL\_A = 8192 (0x2000 : 50%), inverter runs 30.0 [Hz].

When the absolute value of NSOLL\_A is over 100%, inverter runs 100%.

NIST\_A always depends on A004 even if inverter runs at jogging operation. Therefore, when the output frequency reaches the jogging frequency (A038), NIST\_A doesn't equal NSOLL\_A. However, STW1 Bit8



becomes ON.

[Example]

When A004 = 60.0 [Hz], A038 = 6.00 [Hz] and NSOLL\_A = 16384 (0x4000 : 100%), inverter runs 6.0 [Hz] By jogging and NIST\_A becomes 1638 (0x666 : 10%).

## 8.8 Telegram

### 8.8.1 Standard telegram 1

Setpoint and actual value of Standard telegram 1 are the Following.

I/O Data No	Setpoint (from Master to WJ-PB)	Actual value (from WJ-PB to Master)
1	STW1	ZSW1
2	NSOLL_A	NIST_A

### 8.8.2 WJ-PB telegram 103 to 105

Setpoint and Actual value of WJ-PB telegram 103 - 105 are the following. Send and receive data are the data that you set P160 - 179.

I/O Data No	Setpoint (from Master to WJ-PB)	Actual value (from WJ-PB to Master)	WJ-PB telegram		
			103	104	105
1	P160	P170	✓	✓	✓
2	P161	P171	✓	✓	✓
3	P162	P172		✓	✓
4	P163	P173		✓	✓
5	P164	P174		✓	✓
6	P165	P175		✓	✓
7	P166	P176			✓
8	P167	P177			✓
9	P168	P178			✓
10	P169	P179			✓

You need to set P160 - P179 to 0 or Modbus register No. of WJ200 / WL200. If you don't use P162 - P169 and P172 - P179, you need to set these to 0.

When you set P160 to 0, setpoint data is STW1.

When you set P161 to 0, setpoint data is NSOLL\_A.

When you set P170 to 0, setpoint data is ZSW1.

When you set P171 to 0, setpoint data is NIST\_A.

When you want to set 32bit length data to P160 - P179, you need to set consecutively. If you don't set consecutively, PNU 954 bit 4 becomes ON.

The byte order of 32bit length data depends on the setting of P160 - P179. For example, the Modbus register No. 0x1001 is the high byte and 0x1002 is the low byte. When you want to set d001 to P171 and P172, you need to set either the followings.

- P171 = 0x1001, P172 = 0x1002

In this case, the high byte is sent first.

- P171 = 0x1002, P172 = 0x1001

In this case, the low byte is sent first.

When you set P160 - P161 to the value that are non-existent Modbus register No. and P162 - P169 to 0

or the value that are non-existent Modbus register No., WJ-PB receives data from master, but WJ-PB doesn't set to WJ200 / WL200. When you set P160 - P169 non-existent Modbus register No., PNU 954 bit 3 becomes ON.

When you set P170 - P171 to the value that are non-existent Modbus register No. and P172 - P179 to 0 or the value that are non-existent Modbus register No., WJ-PB doesn't read data from WJ200 / WL200 and always sends 0 to master. When you set P170 - P179 non-existent Modbus register No., PNU 954 bit 3 becomes ON.

### Hints

Please don't assign setpoint to F001 (Modbus register No. 0x0001, 0x0002). If you want to assign setpoint to the output frequency, you can assign it a way either of the followings.

(1) You set P161 to 0 (NSOLL\_A) (The unit is % of A004)

(2) You set P160 - P169 to 0x1F14 of Modbus register No. (The unit is 0.01[Hz])

If you set P160 - P169 to F001 (Modbus register No. 0x0001, 0x0002), WJ-PB detects the warning that PNU954 bit5 is ON and F001 of WJ200 / WL200 isn't refreshed by the communication data. If you set P160 - P169 to the output frequency by both above (1) and (2), WJ-PB detects the warning that PNU954 bit6 is ON and F001 of WJ200 / WL200 isn't refreshed by the communication data.

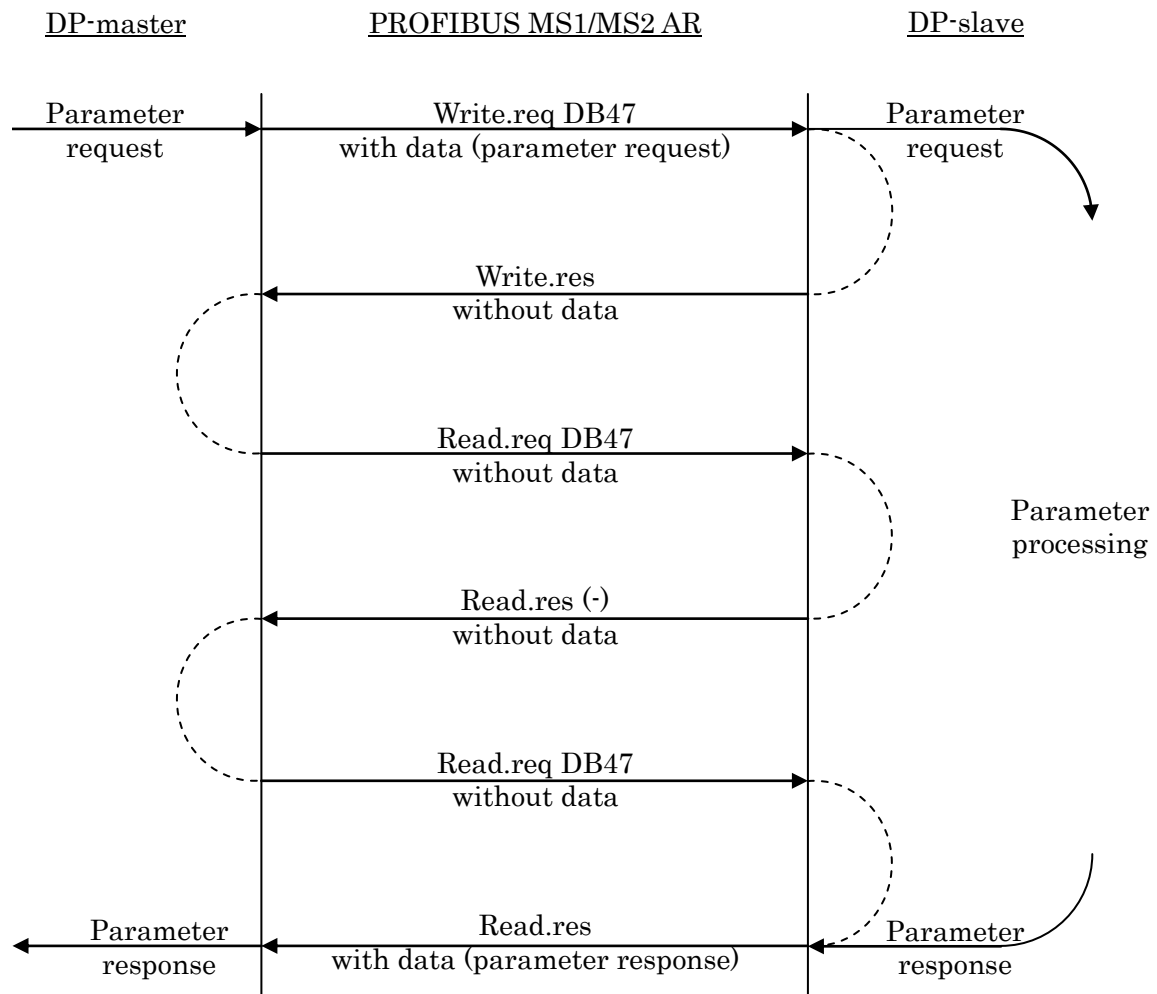
## 8.9 Parameter access

You can access the parameter by Write and Read services of MS1 / MS2 AR of PROFIBUS-DPV1. When you access the parameter, you need to set 47 to index.

### 8.9.1 Read / Write services on MS1 AR / MS2 AR

First you need to send a request of parameter read or write to WJ-PB by Write service.

Next you need to send a request to read the response to WJ-PB by Read service. If there is an error, the reply to a Read or Write service is an error response.



Please refer to the PROFIdrive specification or a manual of PROFIBUS master that you use.

## Chapter 8 PROFIBUS Specification

The Write request data frame that masters send is the following.

Word offset	Block	Byte n	Byte n+1
0	Write header	Function_Num = 0x5F (Write)	Slob_Number = (*)
1		Index = 47	Length = The size of the following Data block
2 - Length + 2	Data	The request data of parameter access. Please refer to "8.9.2 Parameter access on PROFIdrive".	

(\*) You need to set here the address of a slave. Please refer to a manual of PROFIBUS master that you use.

The Write response data frame that WJ-PB sends is the following.

Word offset	Block	Byte n	Byte n+1
0	Write header	Function_Num = 0x5F (Write)	Slob_Number = (*)
1		Index = (*)	Length = (*)

(\*) These are same as the request.

The Read request data frame that masters send is the following.

Word offset	Block	Byte n	Byte n+1
0	Read header	Function_Num = 0x5E (Read)	Slob_Number = (*)
1		Index = 47	Length = The maximum size that master can read

(\*) You need to set here the address of a slave. Please refer to a manual of PROFIBUS master that you use.

The Read response data frame that WJ-PB sends is the following.

Word offset	Block	Byte n	Byte n+1
0	Read header	Function_Num = 0x5E (Read)	Slob_Number = (*)
1		Index = (*)	Length = The size of the following Data block
2 - Length + 2	Data	The response data of parameter access. Please refer to "8.9.2 Parameter access on PROFIdrive".	

(\*) These are same as the request.

The Write or Read error response data frame that WJ-PB sends is the following.

Word offset	Block	Byte n	Byte n+1
0	Read header	Function_Num = 0xDF (Write) = 0xDE (Read)	Slob_Number = 128
1		Error_Code_1	Error_Code_2 = 0

The Error\_Code\_1 is the following.

Error_Class (from IEC 61158)	Error_Code (from IEC 61158)	Application PROFIdrive
0x0..0x9 = reserved		
0xA = application	0x0 = read error 0x1 = write error 0x2 = module failure 0x3 to 7 = reserved 0x8 = version conflict 0x9 = feature not supported 0xA to 0xF = user specific	
0xB = access	0x0 = invalid index	0xB0 = No PAP (DS47): parameter requests are not supported
	0x1 = write length error 0x2 = invalid slot 0x3 = type conflict 0x4 = invalid area	0x1 = Parameter request block is to long for this PAP
	0x5 = state conflict	0xB5 = Access to PAP (DS47) temporarily not possible due to internal processing status
	0x6 = access denied	
	0x7 = invalid range	
	0x8 = invalid parameter 0x9 = invalid type 0xA to 0xF = user specific	
0xC = resource	0x0 = read constraint conflict 0x1 = write constraint conflict	
	0x2 = resource busy	
	0x3 = resource unavailable	
	0x4..0x7 = reserved	
	0x8..0xF = user specific	
0xD...0xF = user specific		

### 8.9.2 Parameter access on PROFIdrive

The request data frame to parameter access on PROFIdrive is the following.

Word offset	Block	Byte n	Byte n+1
0	Request header	Request reference	Request ID
1		Axis-No. / DO-ID	The number of parameters = i
2	1st Parameter address	Attribute	The number of elements
3		PNU	
4		Subindex	
- 3i + 1	ith Parameter address	...	
3i + 2	1st Parameter value	Format	The number of values
3i + 3		Value	
		...	
	ith Parameter value	...	

Nth Parameter values need to be set only for request “Change parameter”. These don’t need to be set for request “Request parameter”.

The response data frame to parameter access on PROFIdrive is the following.

Word offset	Block	Byte n	Byte n+1
0	Response header	Request reference = (*)	Request ID
1		Axis-No. / DO-ID = (*)	The number of parameters = i
2	1st Parameter value	Format	The number of values
3		Value or error code	
		...	
	ith Parameter value	...	

(\*)These are same as the request.

Nth Parameter values exist only for request “Request parameter”.

The descriptions of data are the following.

Block	Field	Data type	Description
Request Header	Request Reference	Unsigned8	The message ID. Unique ID of the request / response pair for the master. Reserved : 0x00 ID : 0x01 - 0xFF
	Request ID	Unsigned8	The type of request data. Request parameter : 0x01 Change parameter : 0x02
	Response ID	Unsigned8	The type of response data. Request parameter (+) : 0x01 Request parameter (-) : 0x81 Change parameter (+) : 0x02 Change parameter (-) : 0x82 Unsupported service : 0x80 (Request ID is 0x00, 0x80 and more)

Block	Field	Data type	Description
	Axis-No. / DO-ID	Unsigned8	Axis-No. / DO-ID that you access. You need to set 0x00 or 0x01 in WJ-PB.
	No. of Parameters	Unsigned8	The number of parameters. You can set from 1 to 39 in PROFIBUS.
Parameter Address	Attribute	Unsigned8	The type of parameter that you access. Value : 0x10 Description : 0x20 Text : 0x30
	Number of Elements	Unsigned8	When the parameter that you access is Array or String, this parameter means the number of elements. You can set from 1 to 234. When the parameter that you access is the other, you need to set 0.
	Parameter Number	Unsigned16	Parameter number Reserved : 0x0000 Parameter number : 0x0001 - 0xFFFF
	Subindex	Unsigned16	The subindex of parameter : 0x0000 - 0xFFFE
Parameter Value	Format	Unsigned8	The data type of values. Unsigned16: 0x06 Unsigned32: 0x07 Octet string : 0x0A V2 (*) : 0x73 Zero : 0x40 (The response value doesn't exist.) Byte : 0x41 Word : 0x42 Double word : 0x43 Error : 0x44
	Number of Values	Unsigned8	The number of values. This value is from 0 to 234.
	Values	Depend on data	The value that you read or change.
	Error value 1	Unsigned16	Error code : 0x0000 - 0x00FF (The lower byte is the error code.)
	Error value 2	Unsigned16	It depends on an error value 1 whether this data exist. This value shows the subindex of the first array element where the error occurs.

(\*) V2 is boolean variables are combined in two octets. Refer to the specification of PROFIdrive for detail.

The error codes are the following.

Error No. = Error value1	Meaning	Used at	Additional info = Error value 2
0x00	Impermissible parameter number	Access to unavailable parameter	0
0x01	Parameter value cannot be changed	Change access to a parameter value that cannot be changed	Subindex
0x02	Low or high limit exceeded	Change access with value outside the value limits	Subindex

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Error No. = Error value1	Meaning	Used at	Additional info = Error value 2
0x03	Faulty subindex	Access to unavailable subindex of array or string parameter. Shall not be used for single parameters	Subindex
0x04	No array	Access with subindex to non-indexed Parameter	0
0x05	Incorrect data type	Change access with value that does not match the data type of the parameter	0
0x06	Setting not permitted (may only be reset)	Change access with value unequal to 0 where this is not permitted	Subindex
0x07	Description element cannot be Changed	Change access to a description element that cannot be changed	Subindex
0x09	No description data available	Access to unavailable description (parameter value is available)	0
0x0B	No operation priority	Change access without rights to change Parameters	0
0x0F	No text array available	Access to text array that is not available (parameter value is available)	0
0x11	Request cannot be executed because of operating state	Access is temporarily not possible for reasons that are not specified in detail. When the parameter of WJ200 / WL200 is accessed, please check whether the inverter can accept change access.	0
0x14	Value impermissible	Change access with a value that is within the value limits, but is not permissible for other long-term reasons (parameter with defined single values)	Subindex
0x15	Response too long	The length of the current response exceeds the maximum transmittable length of the response transport block. In case of a multi parameter request, the response block was shortened by omitting of parameter requests.	0
0x16	Parameter address impermissible	Illegal value (reserved) or value which is not supported for the attribute, illegal or not supported number of elements, illegal parameter number or illegal subindex or a combination	0
0x17	Illegal format	Write request: Illegal format or format of the parameter data which is not supported	0
0x18	Number of values are not consistent	Write request: Number of the values of the parameter data do not match the number of elements in the parameter address	0
0x19	Axis/DO nonexistent	Access to an Axis/DO which does not exist	0
0x20	Parameter text element cannot be Changed	Change access to a parameter text element that cannot be changed	Subindex
0x21	Service not supported	Illegal or unknown Request ID (Response ID = 0x80)	-
0x22	Too much parameter requests	Multi parameter request: The response block does not contain all parameter responses because of maximum number of supported parameter requests per multi parameter request was exceeded.	-



Error No. = Error value1	Meaning	Used at	Additional info = Error value 2
0x23	Multi parameter access not Supported	Device parameter manager does not support multi parameter requests. Request is discarded.	-
0x65 0x67	Error of access to WJ200 / WL200  (Manufacturer-specific)	It is an error of access to WJ200 / WL200. You access while WJ200 / WL200 is initializing or changing the mode. If WJ-PB returns these values while WJ200 / WL200 isn't initializing or changing the mode, please contact the nearest business contact.	-
0x66	The accessed parameter doesn't exist at WL200. (Manufacturer-specific)	You access the parameter that doesn't exist at WL200.	-

You can access multi parameters at a request message. However, when an error occurs, there are cases that the process is stopped and returns the response. This depends on kind of errors. You need to resolve/investigate what process has been done by checking the returned message, because WJ-PB will stop the internal transaction immediately and return the message when the requested command/address was wrong.

For example, when you set the wrong data type like the following request, the process is stopped and returns the response. The following values are hexadecimal.

[The request] (\*) The underline part is the wrong data.

```
01 02 01 03 10 01 03 FA 00 29 10 01 07 E2 00 74 10 01 07 E2 00 76 06 01 02 58 06 01 00 00 00 00
07 01 00 00 00 00
```

[The response] (\*) The underline parts show error.

```
01 82 01 02 40 00 44 01 00 05
```

## 8.10 PNU (parameter number)

The parameter number is assigned to each parameter. The number range of the parameters is specified for 0 - 65535. The details are the following.

PNU	Area	Description
0 - 899	Device specific	Unused
900 - 999	For PROFIdrive	Parameters for PROFIdrive
1000 - 59999	Device specific (Inverter parameter area)	These are parameters to access the parameters of WJ200 / WL200 in WJ-PB.
60000 - 60999	Reserved for PROFIdrive	Unused
61000 - 63999	Reserved for PROFIdrive (PROFINET I/O)	Unused
64000 - 65535	Reserved for PROFIdrive	Unused

### 8.10.1 Data types

The data types shown in the following table are used in this profile.

Data types	Code	Size	Range
Unsigned16	UINT	2 bytes	0 to 65,535
Unsigned32	UDINT	4 bytes	0 to 4,294,967,295
V2	V2	2 bytes	0x0000 to 0xFFFF
Octet string	STR	-	-
Array	ARRAY	-	-

### 8.10.2 Access

The access methods shown in the following table are used in this profile. It indicates whether the object is read or write only, or read and write.

Access	Description
R	Read only.
W	Write only.
RW	Read and write.

### 8.10.3 PROFIdrive area

#### ● 915

Sub-Index	Item	Description
	Name	Selection switch for DO IO Data in the setpoint telegram
	Data type	ARRAY of UINT
	Access	R
	Default setting	0
	Detail	This area displays P160 - P169 of WJ200 / WL200.
0x00	Detail	0x0000 : STW1 The others : Modbus register No. of WJ200 / WL200
0x01	Detail	0x0000 : NSOLL_A The others : Modbus register No. of WJ200 / WL200
0x02 - 0x09	Detail	0x0000 : Unused The others : Modbus register No. of WJ200 / WL200

#### ● 916

Sub-Index	Item	Description
	Name	Selection switch for DO IO Data in the actual value telegram
	Data type	ARRAY of UINT
	Access	R
	Default setting	0
	Detail	This area displays P170 - P179 of WJ200 / WL200.
0x00	Detail	0x0000 : ZSW1 The others : Modbus register No. of WJ200 / WL200
0x01	Detail	0x0000 : NIST_A The others : Modbus register No. of WJ200 / WL200
0x02 - 0x09	Detail	0x0000 : Unused The others : Modbus register No. of WJ200 / WL200

#### ● 918

Sub-Index	Item	Description
-	Name	Node address
	Data type	UINT
	Access	R
	Default setting	126
	Detail	This area displays the node address of WJ-PB.

#### ● 922

Sub-Index	Item	Description
-	Name	Telegram selection
	Data type	UINT
	Access	R
	Default setting	1
	Detail	This area displays telegram number that WJ-PB is communicating..

● 944

Sub-Index	Item	Description
-	Name	Fault message counter
	Data type	UINT
	Access	R
	Default setting	0
	Detail	This area displays the number of times that the fault buffer has been changed. When the fault buffer is changed, this value is increased by 1. When you write PNU952 0, the fault buffer is cleared and this value becomes 0.

● 947

Sub-Index	Item	Description
0x00 - 0x3F	Name	Fault number
	Data type	ARRAY of UINT
	Access	R
	Default setting	1
	Detail	This area displays the fault number list that occurred in WJ200 / WL200 and WJ-PB.

● 952

Sub-Index	Item	Description
-	Name	Fault situation counter
	Data type	UINT
	Access	RW
	Default setting	0
	Detail	This area displays the number of fault situation since power on or the last reset. Fault situation isn't the number of times that error occurred but the number of times that you have acknowledged errors. You can acknowledge some errors. Therefore, this value differs from the number of times that error occurred. [Write] This parameter can be written only 0. When you write this PNU 0, PNU944, PNU952 and PNU947 are cleared.

● 953

Sub-Index	Item	Description
-	Name	Warning parameters
	Data type	V2
	Access	R
	Default setting	0
	Detail	This area displays the warning of WJ200 / WL200. This parameter is same as d090 of WJ200 / WL200.

## ● 954

Sub-Index	Item	Description
-	Name	Warning parameters
	Data type	V2
	Access	R
	Default setting	0
	Detail	This area displays the warning of WJ-PB. Please refer to "8.12 Warning" for details.

## ● 963

Sub-Index	Item	Description
-	Name	Actual baud rate
	Data type	UINT
	Access	R
	Default setting	0
	Detail	This area displays actual baud rate of PROFIBUS. [Value] 0 : 9.6 kbit/s 1 : 19.2 kbit/s 2 : 93.75 kbit/s 3 : 187.5 kbit/s 4 : 500 kbit/s 6 : 1500 kbit/s 7 : 3000 kbit/s 8 : 6000 kbit/s 9 : 12000 kbit/s 11 : 45.45 kbit/s

## ● 964

Sub-Index	Item	Description
	Name	Drive Unit identification
	Data type	ARRAY of UINT
	Access	R
	Detail	This area displays the information of WJ-PB.
0x00	Name	Manufacturer
	Default setting	617
	Detail	This area displays the vendor code.
0x01	Name	Drive Unit type
	Default setting	0x0EFD
	Detail	This area displays drive unit type code that is the product code of WJ-PB
0x02	Name	Version (Software)
	Default setting	This value depends on shipment time.
	Detail	This area displays software version of WJ-PB. When version is xx.yy, this parameter is xxyy (decimal).
0x03	Name	Firmware date (year)
	Default setting	This value depends on shipment time.
	Detail	This area displays year (decimal) that firmware of WJ-PB was created.
0x04	Name	Firmware date (day/month)
	Default setting	This value depends on shipment time.

	Detail	This area displays day/month (ddmm : decimal) that firmware of WJ-PB was created.
--	--------	---

### ● 965

Sub-Index	Item	Description
-	Name	Telegram selection
	Data type	STR (2 characters)
	Access	R
	Default setting	0x032A
	Detail	This area displays profile number and profile version that WJ-PB supports. The 1st byte means profile number and PROFIdrive is 3. The 2nd byte means profile version. This value is 42, because WJ-PB supports PROFIdrive Ver.4.2. Therefore, this value is 0x032A.

### 8.10.4 PROFIdrive area

Inverter parameters are allocated to objects 1000 to 1037 and 2000 to 2037. 1000 to 1037 are 2-byte parameters and 2000 to 2037 are 4-byte parameters.

#### Index and sub-index calculation method

Index:  $1000 + (\text{Inverter register number} / 254)$ ,  $2000 + (\text{Inverter register number} / 254)$

Sub-Index:  $1 + (\text{Inverter register number} \% 254)$ ,

Where

$(\text{Inverter register number} / 254)$  is the Integer part after the inverter register number is divided by 254.

$(\text{Inverter register number} \% 254)$  is the remainder after the inverter register number is divided by 254.

Please refer to "Appendix object list" for details.

## 8.11 Fault

When WJ-PB detects a fault, WJ-PB stores the fault code into the fault buffer.

[The sequence to store the fault code into the fault buffer]

- The fault code is stored into PNU 947's subindex that hasn't still been stored from 0 to 7. When subindex 0 - 7 have already been stored to, subindex 7 is overwritten.
- PNU 944 is increased by 1.
- ZSW1 bit3 is changed to ON.

[The sequence to acknowledge the fault buffer]

- When STW1 bit 7 is changed from OFF to ON and is ON for 20ms or more, to acknowledge the fault buffer starts.
- The data of subindex 48 - 55 of PNU 947 are copied to subindex 56 - 63.
- The data of subindex 40 - 47 of PNU 947 are copied to subindex 48 - 55.
- The data of subindex 32 - 39 of PNU 947 are copied to subindex 40 - 47.
- The data of subindex 24 - 31 of PNU 947 are copied to subindex 32 - 39.
- The data of subindex 16 - 23 of PNU 947 are copied to subindex 24 - 31.
- The data of subindex 8 - 15 of PNU 947 are copied to subindex 16 - 23.
- The data of subindex 0 - 7 of PNU 947 are copied to subindex 8 - 15.
- 0 is stored into subindex 0 - 7 of PNU 947.
- PNU 952 is increased by 1.
- PNU 944 is increased by 1.
- If trip is occurred in WJ200 / WL200, trip reset is sent to WJ200 / WL200.
- ZSW1 bit3 is changed to OFF.

[The sequence to clear the fault buffer]

- When PNU952 is written 0, to clear the fault buffer starts.
- The data of all subindices of PNU 947 are cleared to 0.
- PNU 944 is changed to 0.

The fault codes are the following.

Fault	Fault code	Description
Trip of WJ200 / WL200	Trip code	Trip was occurred in WJ200 / WL200.
Timeout error of PROFIBUS	Trip code (63 : E63)	The timeout error was occurred on PROFIBUS.
The rotary switches error	Trip code (65 : E65)	The rotary switches of WJ-PB couldn't be read normally.
Communication error between WJ-PB and WJ200 / WL200	0xFF01	Communication error was occurred between WJ-PB and WJ200 / WL200.
The version error of WJ200 / WL200	0xFF02	The version of WJ200 / WL200 that doesn't support WJ-PB

Please refer to the PROFIdrive specification for details of the fault mechanism.

## 8.12 Warning

When WJ-PB detects warning, the warning code is stored to PNU 953 and PNU 954, and ZSW1 bit 7 is changed to ON.

The specification of PNU953 is same as d090 of WJ200 / WL200.

The specification that each bit of PNU954 becomes ON is the following.

PNU 954 bit	Conditions
0	C005 ≠ 09 (2CH)
1	C006 ≠ 83 (HLD)
2	Any of C001 - C007 = 06 (JG)
3	The Modbus register No. that doesn't exist is assigned in P160 - P179.
4	The 32bit length Modbus register No. isn't assigned in P160 - P179 consecutively.
5	F001 (The Modbus register No. = 0x0001 (upper), 0x0002 (lower)) is assigned in P160 - P169.
6	There are the settings of the output frequency in P160 - P169. There can be only a setting.
7	P170 = 0 (ZSW1), but P160 ≠ 0 (STW1)
8	The sequence of upper and lower of the 32bit length Modbus register No. differ in selected telegram.

Please refer to Chapter 6 "Troubleshooting and Maintenance" of the WJ200 / WL200 instruction manual for "Warning codes" for the warning about PNU953.

Even if the warning about PNU954 occurs, the inverter can run.



## 9.1 Status indicator explanations and error handling

The 7 types of indicator lighting statuses are explained in the following table.

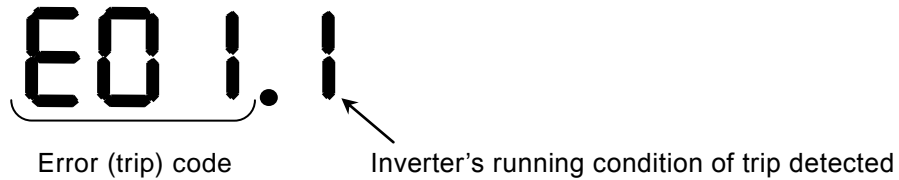
Abbreviation	Name and status
On	ON
Off	OFF
Blinking	Blinking ON (200 ms) and OFF (200 ms)
-	Undefined

ON	SF	BF	COMM	Description	Remarks
On	Off	Off	On	Communicating by the set telegram	WJ-PB is communicating with master by the set telegram.
Off	Off	Off	Off	Power supply error	Power is not being supplied correctly to the Communication Unit. <ul style="list-style-type: none"> <li>• Check that power is being supplied correctly to the inverter (for example, check whether the wiring of the inverter main power supply is correct, if the power supply voltage has dropped, and the inverter is operating normally).</li> <li>• Check that the WJ-PB is mounted correctly onto the inverter.</li> <li>• Eliminate the cause of the error, and then turn the WJ200 / WL200 power supply off and on again.</li> </ul>
On	-	On	Off	Master not available	WJ-PB isn't connected to the master unit yet. <ul style="list-style-type: none"> <li>• Check that the master unit is operating correctly.</li> <li>• Check that the communications cable is connected correctly to the connector or wired correctly.</li> </ul>
On	-	Blinking	Off	Parameter fault	The parameter (node address, etc.) of WJ-PB that is set in the master unit is wrong. <ul style="list-style-type: none"> <li>• Check that the parameter is set in the master unit.</li> </ul>
On	On	Off	On	Fault in WJ-PB	WJ-PB is communicating with master by the set telegram, but some error about PROFIBUS has occurred in WJ-PB. <ul style="list-style-type: none"> <li>• Check the diagnosis message.</li> </ul>

## 9.2 Inverter errors

When the inverter is in a tripped state, the inverter output turns OFF (trips), and the inverter displays an error code.

The trip history monitor (d081 to d086) also displays the same error code as the inverter.



Please refer to Chapter 6 “Troubleshooting and Maintenance” of the WJ200 / WL200 instruction manual for “Error (trip) code” and “Inverter’s running condition of trip detected.”

In an inverter tripped state using the WJ-PB, is the following table.

Display and indicators	Possible causes	Remedy
0.00 (Other than trip indication)	The Inverter does not power up	Follow the instructions provided in the WJ200 / WL200 user's manual to troubleshoot.
	The WJ-PB connector is damaged	Replace the WJ-PB.
	The Inverter RS input is ON	Switch the Inverter RS input OFF.
	Mapping “operator control (31)”, “force terminal mode (51)”, “multi-speed frequency 1 (02)” to the input terminal. At least, the one of them turns ON.	Turn them OFF.
E60.* E69.*	The WJ-PB encountered a fatal error during power up.	Turn it OFF instantly. Then, check that the WJ-PB is mounted properly and restart the WJ-PB. If the problem persists, replace the WJ-PB.
	The WJ-PB connector is damaged	Replace the WJ-PB.
	The WJ-PB is disconnected.	Check that the WJ-PB is connected.
	The WJ-PB encountered a fatal error during Operation.	Check that the WJ-PB is mounted properly and restart the WJ-PB. If the problem persists, replace the WJ-PB.
E63.*	Communication error occurred between the PROFIBUS master and the WJ-PB.	Check the connection between the PROFIBUS master and the WJ-PB.
E65.*	A read error of rotary switches.	Restart WJ-PB. If the problem persists, check whether a noise source exists or not around. If the problem persists again, replace the WJ-PB.

NOTE: E60.\* and E69.\* are same error contents. E60.\* error indicates that are detected in the WJ-PB. E69.\* error indicates that are detected in the inverter.

**Factor code list**

No trip factor	0	Fin temperature error	21
Overcurrent protection during constant speed	1	CPU communication error	22
Overcurrent protection during deceleration	2	Main circuit error	25
Overcurrent protection during acceleration	3	Driver error	30
Overcurrent protection during stop	4	Thermistor error	35
Overload protection	5	Break error addition	36
Braking resistor overload protection	6	Emergency trip	37
Overvoltage protection	7	The low-speed range overload protection	38
EEPROM error	8	Operator bad connection	40
Under voltage protection	9	Easy sequence illegal instruction error	43
Current Transformer error	10	Easy sequence nesting error	44
CPU error	11	Easy sequence execution instruction error	45
External trip	12	Trip easy sequence 0 to 9	50 to 59
USP error	13	Option error 0 to 9	60 to 69
Grounding protection	14	Encoder disconnection	80
Incoming overvoltage protection	15	Acceleration	81
Temperature detection error	19	Trip position control range	83

**Status code list**

During reset	0	Operates at frequency = 0	5
During stop	1	During startup	6
During deceleration	2	DB active	7
At a constant speed	3	During overload limit	8
During acceleration	4	-	-

## 9.3 Hint of the action by the combination with the WJ200

### / WL200

The inverter WJ200 / WL200 series has various items (parameters). Attention is necessary because driving movement of the PROFIBUS changes depending on the items (parameters).

An example is shown below.

#### 9.3.1 A002 (Run command source)

The behavior of WJ200 / WL200 is as follows when changed from OFF (shut off) to ON (enabled to drive) when WJ200 / WL200 is used with Dip-Switch in the position to activate functional safety.

If either GS1 signal or GS2 signal is turned to OFF (shut off), the condition of the output is continued to an interruption state.

It is to be known that approval by a third party for "STO" function is void even if the safety function is activated with the Dip-Switch in the position to select functional safety (STO) when WJ-PB is attached to WJ200 / WL200.

Please refer to [Functional Safety of WJ200 / WL200] in [Chapter 2.1 Outline of product].

Contents	OFF(inverter output is forbidden)→ON(inverter output is allowed)
01 (control circuit terminal block)	Driving restart
02 (digital operator)	stop (driving does not restart)
03 (Modbus)	Driving restart
04 (option)	Driving restart

#### 9.3.2 C102 (reset select)

Select the action of the reset terminal (RS) of the inverter.

By setting of C102, PROFIBUS communication continuation presence changes by the input of the reset terminal (RS).

The action explanation is as follows.

Contents	Description
00	When the RS is turned ON, the inverter is restored from the trip state, and communication between the inverter and WJ-PB suspends, and PROFIBUS communication suspends. (In normal state: the inverter output turns OFF In trip state: the inverter is restored from a trip state.)
01	When the RS is turned ON, the inverter is restored from the trip state, and communication between the inverter and WJ-PB suspends, and PROFIBUS communication suspends. (In normal state: the inverter output turns OFF In trip state: the inverter is restored from a trip state.)
02	When the RS is turned ON, the inverter is restored from the trip state, and communication between the inverter and WJ-PB suspends, and PROFIBUS communication suspends. (In normal state: invalid (there is no change to the inverter) In trip state: the inverter is restored from a trip state.)
03	When the RS is turned ON, the inverter is restored from the trip state, the communication between WJ200 / WL200 and WJ-PB continues, the PROFIBUS communication continues. (In normal state: invalid (there is no change to the inverter) In trip state: the inverter is restored from a trip state.)

### 9.3.3 EzSQ

Please be careful of the followings.

- Do not turn ON the logic input 5 (2CH) and the logic input 6 (HLD) with the EzSQ program.
- Do not assign jogging (JG) to the any logic inputs and turn ON its logic input.
- Do not write the parameter both via PROFIBUS and with EzSQ program at the same time. If you do so, the 1st write access is overwritten by the 2nd write access.

### 9.3.4 External 24 V DC power supply

The inverter control section can be powered with external 24V DC power supply. This will allow you to read and write parameters via PROFIBUS, but please be careful of the followings.

- Do not let inverter run.
- Do not turn off inverter immediately after you store to EEPROM of the inverter. The EEPROM error (E08) may occur in the inverter.

Please refer to the instruction manual of WJ200 / WL200 about externally power 24 V DC.

### 9.3.5 Control by frequency

You can control the inverter by not NSOLL\_A / NIST\_A but frequency. When you control the inverter by frequency, you need to set the followings.

- Either Telegram 104 or 105 is used.
- Modbus register No. 0x1F14 is set to any one of P161 - P169.
- Modbus register No. 0x1001 and 0x1002 are set to any of P171 - P179 consecutively.

For example, when you set the following, the output frequency setting is 2nd byte of the message data sent from the master to slave and the output frequency monitor is 2nd and 3rd byte of the message data sent from the slave to the master.

- Telegram 104
- P161 = 0x1F14
- P171 = 0x1001, P172 = 0x1002

## **9.4 Hint of WJ-PB and PROFIBUS**

### **9.4.1 The order of turning on the power of WJ-PB and the master**

The order of turning on the power of masters and slaves isn't defined in PROFIBUS. When both of a master and WJ-PB are turned on the power and both of them are ready to PROFIBUS, they start to communicate of PROFIBUS. However, it may take some time that a master prepares PROFIBUS. Please refer to the instruction manual of the master for details.

### **9.4.2 Replacement of WJ-PB and WJ200 / WL200**

When you replace WJ-PB and/or WJ200 / WL200, you need to set the node address. If you don't set the right node address, WJ-PB may not communicate. If you set the duplicated node address, WJ-PB may operate by data that are sent to the duplicated node address.

When you replace WJ-PB, you need to set the rotary switches the same setting of old WJ-PB.

When you replace WJ200 / WL200, you need to set the inverter parameters (example P180) the same setting of old WJ200 / WL200.

When you replace WJ-PB and WJ200 / WL200, you need to set both of them.

If WJ-PB doesn't start to communicate by PROFIBUS after the replacement, please confirm the PROFIBUS cable is connected right and turn off and on WJ-PB and WJ200 / WL200.

### **9.4.3 The initialization and the mode change of WJ200 / WL200**

You can initialize and change the mode of WJ200 / WL200 even if WJ-PB is communicating. When you initialize or change the mode while WJ-PB communicates, WJ-PB keeps communicating by PROFIBUS. However, when you access the inverter parameters while WJ200 / WL200 is initializing, WJ-PB returns the error code 0x65 of PROFIdrive.

You can initialize and change the mode of WJ200 / WL200 via PROFIBUS, but WJ-PB returns the error code 0x65 of PROFIdrive for write access to the inverter parameter b180.

The node address of WJ-PB isn't changed after the initialization or the change of the mode. The inverter parameter P180 becomes 0 after the initialization or the change of the mode, but the node address isn't changed even if the node address is set by P180.

### **9.4.4 PROFIBUS analyzer**

You can collect and analyze PROFIBUS communication log using a PROFIBUS analyzer. It is useful to investigate the unexpected phenomenon.

Recommended analyzers are the following.

Product name	Manufacturer	Type
ProfiTrace2	PROCENTEC	-
Protocol Analyzer for PROFIBUS DP and PA	Softing Industrial Automation GmbH	BC-4x0-PB (x = 0 or 5)

### 9.4.5 Technical support

If you want to get our technical support, please teach us the following information.

Contents	Note
The phenomenon and frequency	In as much detail as possible.
Type of WJ200 / WL200	Please refer to “1.2.1 Required information for product inquiry” for detail.
MFG No. of WJ-PB and WJ200 / WL200	
Date of purchase WJ-PB and WJ200 / WL200	
The information of the rotary switches of WJ-PB	Please refer to “3.1 Appearance and each part name” for detail.
The setting of inverter parameters of WJ200 / WL200	The csv file saved with ProDriveNext is desirable.
The PROFIBUS network layout	Include the node address of all devices.
The master that you use	Manufacturer, Type
If there are other slaves, the information of these slaves	If these slaves aren't WJ-PB, Manufacturer, Type of these slaves.
The communication log when the phenomenon occurred.	It is the communication log file saved with the analyzer in “9.4.4 PROFIBUS analyzer”.

## 10.1 WJ-PB Specifications

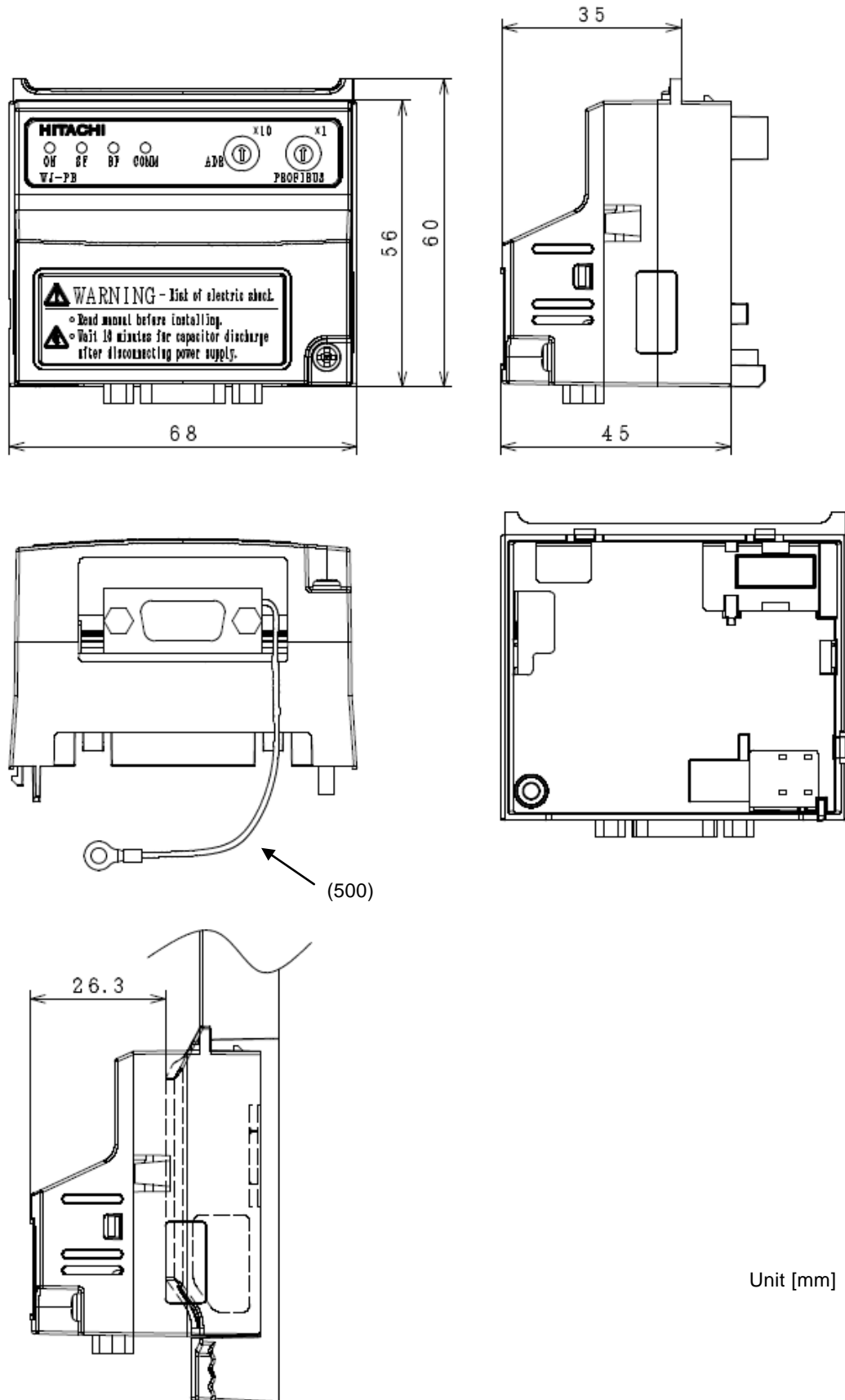
Item		Specification
Installation	Unit type	WJ200 / WL200 Series Option Board <sup>*1</sup>
	Model	WJ-PB
	Dimensions (W x H x D)	68 x 60 x 45[mm]
	Weight	170[g] (typical)
Environment	Ambient operating temperature	-10 to 50[degree] (no icing or condensation)
	Ambient operating humidity	20 to 90[%], RH
	Storage temperature	-20 to 65°C (no icing or condensation)
	Vibration resistance	5.9[m/s <sup>2</sup> ] (0.6[G]) at 10 to 55[Hz]
	Dielectric strength	500[V <sub>AC</sub> ] (between isolated circuits)
	Conformance to EMC and electrical safety standards	EN61800-3: 2004 / A1:2012 (2014/30/EU) First environment, Category C1 <sup>*2</sup> EN61800-5-1: 2007 (2014/35/EU)
Enclosure rating	IP 20	
PROFIBUS Interface	Communications protocol	PROFIBUS DPV0 PROFIBUS DPV1
	Connector	D-sub 9 pin
	Cable	PROFIBUS DP cable
	Node address	From 0 to 99 : set by rotary switches From 0 to 126 : set by P180 of WJ200 / WL200
	Profile	PROFIdrive

Note1: When WJ-PB is attached to WJ200 / WL200, functional safety is not supported. Please refer to "5.3 A system configuration of the PROFIBUS" for details.

Note2: C1 only when installed in a metal cabinet, otherwise C2.



## 10.2 Appearance and Dimensions



Unit [mm]

## Appendix object list

Inverter parameters are allocated to objects 1000 to 1037 and 2000 to 2037.

1000 to 1037 are 2-byte parameters and 2000 to 2037 are 4-byte parameters.

The data in the table means the following.

- The data prefixed with "0x" means hexadecimal. From 'A' to 'F' are used to represent values from 10 to 15.
- The negative data are represented by two's complement.
- The other data is decimal.

### Monitor mode: group d

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
2016	0x22	0x1001	04 (UDINT)	d001	Output frequency monitor	R	0 to 40000	0.01[Hz]	
1016	0x24	0x1003	02 (UINT)	d002	Output current monitor	R	0 to 65530	0.01[A]	
1016	0x25	0x1004	02 (UINT)	d003	Rotation direction monitor	R	0: forward 1: stop 2: reverse	-	
2016	0x26	0x1005	04 (UDINT)	d004	Process variable (PV), PID feedback monitor	R	0 to 1000000	0.1	
1016	0x28	0x1007	02 (UINT)	d005	Intelligent input terminal status	R	2 <sup>0</sup> : terminal 1 2 <sup>1</sup> : terminal 2 2 <sup>2</sup> : terminal 3 2 <sup>3</sup> : terminal 4 2 <sup>4</sup> : terminal 5 2 <sup>5</sup> : terminal 6 2 <sup>6</sup> : terminal 7	-	
1016	0x29	0x1008	02 (UINT)	d006	Intelligent output terminal status	R	2 <sup>0</sup> : terminal 11 2 <sup>1</sup> : terminal 12 2 <sup>6</sup> : relay	-	
2016	0x2A	0x1009	04 (UDINT)	d007	Scaled output frequency monitor	R	0 to 4000000	0.01	
2016	0x2C	0x100B	04 (DINT)	d008	Actual frequency monitor	R	-40000 to 40000	0.01[Hz]	✓
1016	0x2E	0x100D	02 (INT)	d009	Torque command monitor	R	-200 to 200	1[%]	✓
1016	0x2F	0x100E	02 (INT)	d010	Torque bias monitor	R	-200 to 200	1[%]	✓
1016	0x31	0x1010	02 (INT)	d012	Output torque monitor	R	-200 to 200	1[%]	✓

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1016	0x32	0x1011	02 (UINT)	d013	Output voltage monitor	R	0 to 6000	0.1[V]	
1016	0x33	0x1012	02 (UINT)	d014	Input power monitor	R	0 to 1000	0.1[kW]	
2016	0x34	0x1013	04 (UDINT)	d015	Watt-hour monitor	R	0 to 99990000	0.1[kW]	
2016	0x36	0x1015	04 (UDINT)	d016	Elapsed RUN time monitor	R	0 to 999000	1[h]	
2016	0x38	0x1017	04 (UDINT)	d017	Elapsed power-on time monitor	R	0 to 999000	1[h]	
1016	0x3A	0x1019	02 (INT)	d018	Heat sink temperature monitor	R	-200 to 1500	0.1[°C]	
1016	0x3E	0x101D	02 (UINT)	d022	Life check monitor	R	2 <sup>0</sup> : Capacitor on the main board	Bit	
2016	0x57	0x1036	04 (DINT)	d029	Position setting monitor	R	-268435455 to 268435455	1	✓
2016	0x59	0x1038	04 (DINT)	d030	Position feedback monitor	R	-268435455 to 268435455	1	✓
1016	0x78	0x1057	02 (UINT)	d060	Inverter mode monitor	R	0: IM CT mode 3: PM motor	-	✓
1000	0x12	0x0011	02 (UINT)	d080	Trip Counter	R	0 to 65530	-	
1000	0x13	0x0012	02 (UINT)	d081	Trip information 1 (factor)	R	Please refer to section 9, factor code list	-	
1000	0x14	0x0013	02 (UINT)	d081	Trip information 1 (inverter status)	R	Please refer to section 9, status code list	-	
2000	0x15	0x0014	04 (UDINT)	d081	Trip information 1 (frequency)	R	Output frequency at trip point	0.01[Hz]	
1000	0x17	0x0016	02 (UINT)	d081	Trip information 1 (current)	R	Motor current at trip point	0.01[A]	
1000	0x18	0x0017	02 (UINT)	d081	Trip information 1 (voltage)	R	DC bus voltage at trip point	0.1[V]	
2000	0x19	0x0018	04 (UDINT)	d081	Trip information 1 (running time)	R	Cumulative inverter operation time at trip point	1[h]	
2000	0x1B	0x001A	04 (UDINT)	d081	Trip information 1 (power-on time)	R	Cumulative power-ON time at trip point	1[h]	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1000	0x1D	0x001C	02 (UINT)	d082	Trip information 2 (factor)	R	Please refer to section 9, factor code list	-	
1000	0x1E	0x001D	02 (UINT)	d082	Trip information 2 (inverter status)	R	Please refer to section 9, status code list	-	
2000	0x1F	0x001E	04 (UDINT)	d082	Trip information 2 (frequency)	R	Output frequency at trip point	0.01[Hz]	
1000	0x21	0x0020	02 (UINT)	d082	Trip information 2 (current)	R	Motor current at trip point	0.01[A]	
1000	0x22	0x0021	02 (UINT)	d082	Trip information 2 (voltage)	R	DC bus voltage at trip point	0.1[V]	
2000	0x23	0x0022	04 (UDINT)	d082	Trip information 2 (running time)	R	Cumulative inverter operation time at trip point	1[h]	
2000	0x25	0x0024	04 (UDINT)	d082	Trip information 2 (power-on time)	R	Cumulative power-ON time at trip point	1[h]	
1000	0x27	0x0026	02 (UINT)	d083	Trip information 3 (factor)	R	Please refer to section 9, factor code list	-	
1000	0x28	0x0027	02 (UINT)	d083	Trip information 3 (inverter status)	R	Please refer to section 9, status code list	-	
2000	0x29	0x0028	04 (UDINT)	d083	Trip information 3 (frequency)	R	Output frequency at trip point	0.01[Hz]	
1000	0x2B	0x002A	02 (UINT)	d083	Trip information 3 (current)	R	Motor current at trip point	0.01[A]	
1000	0x2C	0x002B	02 (UINT)	d083	Trip information 3 (voltage)	R	DC bus voltage at trip point	0.1[V]	
2000	0x2D	0x002C	04 (UDINT)	d083	Trip information 3 (running time)	R	Cumulative inverter operation time at trip point	1[h]	
2000	0x2F	0x002E	04 (UDINT)	d083	Trip information 3 (power-on time)	R	Cumulative power-ON time at trip point	1[h]	
1000	0x31	0x0030	02 (UINT)	d084	Trip information 4 (factor)	R	Please refer to section 9, factor code list	-	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1000	0x32	0x0031	02 (UINT)	d084	Trip information 4 (inverter status)	R	Please refer to section 9, status code list	-	
2000	0x33	0x0032	04 (UDINT)	d084	Trip information 4 (frequency)	R	Output frequency at trip point	0.01[Hz]	
1000	0x35	0x0034	02 (UINT)	d084	Trip information 4 (current)	R	Motor current at trip point	0.01[A]	
1000	0x36	0x0035	02 (UINT)	d084	Trip information 4 (voltage)	R	DC bus voltage at trip point	0.1[V]	
2000	0x37	0x0036	04 (UDINT)	d084	Trip information 4 (running time)	R	Cumulative inverter operation time at trip point	1[h]	
2000	0x39	0x0038	04 (UDINT)	d084	Trip information 4 (power-on time)	R	Cumulative power-ON time at trip point	1[h]	
1000	0x3B	0x003A	02 (UINT)	d085	Trip information 5 (factor)	R	Please refer to section 9, factor code list	-	
1000	0x3C	0x003B	02 (UINT)	d085	Trip information 5 (inverter status)	R	Please refer to section 9, status code list	-	
2000	0x3D	0x003C	04 (UDINT)	d085	Trip information 5 (frequency)	R	Output frequency at trip point	0.01[Hz]	
1000	0x3F	0x003E	02 (UINT)	d085	Trip information 5 (current)	R	Motor current at trip point	0.01[A]	
1000	0x40	0x003F	02 (UINT)	d085	Trip information 5 (voltage)	R	DC bus voltage at trip point	0.1[V]	
2000	0x41	0x0040	04 (UDINT)	d085	Trip information 5 (running time)	R	Cumulative inverter operation time at trip point	1[h]	
2000	0x43	0x0042	04 (UDINT)	d085	Trip information 5 (power-on time)	R	Cumulative power-ON time at trip point	1[h]	
1000	0x45	0x0044	02 (UINT)	d086	Trip information 6 (factor)	R	Please refer to section 9, factor code list	-	
1000	0x46	0x0045	02 (UINT)	d086	Trip information 6 (inverter status)	R	Please refer to section 9, status code list	-	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
2000	0x47	0x0046	04 (UDINT)	d086	Trip information 6 (frequency)	R	Output frequency at trip point	0.01[Hz]	
1000	0x49	0x0048	02 (UINT)	d086	Trip information 6 (current)	R	Motor current at trip point	0.01[A]	
1000	0x4A	0x0049	02 (UINT)	d086	Trip information 6 (voltage)	R	DC bus voltage at trip point	0.1[V]	
2000	0x4B	0x004A	04 (UDINT)	d086	Trip information 6 (running time)	R	Cumulative inverter operation time at trip point	1[h]	
2000	0x4D	0x004B	04 (UDINT)	d086	Trip information 6 (power-on time)	R	Cumulative power-ON time at trip point	1[h]	
1000	0x4F	0x004E	02 (UINT)	d090	Warning monitor	R	Warning code	-	
1009	0x13	0x0900	02 (UINT)	-	Writing to the EEPROM	R/W	0: recalculation the constant of the motor 1: stored the setting value to the EEPROM The others: recalculation the constant of the motor, stored the setting value to the EEPROM	-	-
1009	0x15	0x0902	02 (UINT)	-	Writing mode selection	R/W	0: writing enabled 1: writing disabled	-	-
1016	0x47	0x1026	02 (UINT)	d102	DC bus voltage monitor	R	0 to 10000	0.1[V]	
1016	0x48	0x1027	02 (UINT)	d103	BRD load ratio monitor	R	0 to 1000	0.1[%]	
1016	0x49	0x1028	02 (UINT)	d104	Electronic thermal monitor	R	0 to 1000	0.1[%]	

### Function mode: group F

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
2000	0x02	0x0001	04 (UDINT)	F001	Output frequency setting	R/W	0 to the maximum frequency (A004)	0.01[Hz]	
2017	0x26	0x1103	04 (UDINT)	F002	Acceleration (1) time	R/W	1 to 360000	0.01[s]	
2017	0x28	0x1105	04 (UDINT)	F003	Deceleration (1) time	R/W	1 to 360000	0.01[s]	

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1017	0x2A	0x1107	02 (UINT)	F004	Keypad Run key routing	R/W	00: forward 01: reverse	-	
2033	0x46	0x2103	04 (UDINT)	F202	Acceleration (1) time, 2nd motor	R/W	1 to 360000	0.01[s]	
2033	0x48	0x2105	04 (UDINT)	F203	Deceleration (1) time, 2nd motor	R/W	1 to 360000	0.01[s]	

### Function mode: group A

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1018	0x26	0x1201	02 (UINT)	A001	Frequency source	R/W	00: volume 01: control terminal 02: function F001 setting 03: Modbus network input 04: option board 06: pulse train input 07: EzSQ 10: calculate function output	-	
1018	0x27	0x1202	02 (UINT)	A002	Run command source	R/W	00: control terminal 01: run key on the keypad, or digital operator 02: Modbus network input 03: option	-	
1018	0x28	0x1203	02 (UINT)	A003	Base frequency	R/W	300 to the maximum frequency (A004)	0.1[Hz]	
1018	0x29	0x1204	02 (UINT)	A004	Maximum frequency	R/W	300 to 4000	0.1[Hz]	
1018	0x2A	0x1205	02 (UINT)	A005	[AT] selection	R/W	00: select between [O] and [OI] at [AT] (ON = OI, OFF = O) 02: select between [O] and external POT at [AT] (ON =POT, OFF = O) 03: select between [OI] and external POT at [AT] (ON =POT, OFF = OI)	-	
2018	0x30	0x120B	04 (UDINT)	A011	[O] input active range start frequency	R/W	0 to 40000	0.01[Hz]	
2018	0x32	0x120D	04 (UDINT)	A012	[O] input active range end frequency	R/W	0 to 40000	0.01[Hz]	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1018	0x34	0x120F	02 (UINT)	A013	[O] input active range start voltage	R/W	0 to 100	1[%]	
1018	0x35	0x1210	02 (UINT)	A014	[O] input active range end voltage	R/W	0 to 100	1[%]	
1018	0x36	0x1211	02 (UINT)	A015	[O] input start frequency enable	R/W	00: offset (A011 value) 01: 0[Hz]	-	
1018	0x37	0x1212	02 (UINT)	A016	Analog input filter	R/W	1 to 30: x 2[ms] filter 31: 500[ms] fixed filter with plus or minus 0.1[kHz] hysteresis	1	
1019	0x3A	0x1215	02 (UINT)	A019	Multi-speed operation selection	R/W	00: binary operation 01: bit operation	-	
2018	0x3B	0x1216	04 (UDINT)	A020	Multi-speed frequency 0	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x3D	0x1218	04 (UDINT)	A021	Multi-speed frequency 1	R/W	0 or start frequency to the maximum frequency (A004)	0.01[Hz]	
2018	0x3F	0x121A	04 (UDINT)	A022	Multi-speed frequency 2	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x41	0x121C	04 (UDINT)	A023	Multi-speed frequency 3	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x43	0x121E	04 (UDINT)	A024	Multi-speed frequency 4	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x45	0x1220	04 (UDINT)	A025	Multi-speed frequency 5	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x47	0x1222	04 (UDINT)	A026	Multi-speed frequency 6	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x49	0x1224	04 (UDINT)	A027	Multi-speed frequency 7	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x4B	0x1226	04 (UDINT)	A028	Multi-speed frequency 8	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x4D	0x1228	04 (UDINT)	A029	Multi-speed frequency 9	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x4F	0x122A	04 (UDINT)	A030	Multi-speed frequency 10	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x51	0x122C	04 (UDINT)	A031	Multi-speed frequency 11	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	



## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
2018	0x53	0x122E	04 (UDINT)	A032	Multi-speed frequency 12	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x55	0x1230	04 (UDINT)	A033	Multi-speed frequency 13	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x57	0x1232	04 (UDINT)	A034	Multi-speed frequency 14	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
2018	0x59	0x1234	04 (UDINT)	A035	Multi-speed frequency 15	R/W	0 or start frequency to maximum frequency (A004)	0.01[Hz]	
1018	0x5D	0x1238	02 (UINT)	A038	Jog frequency	R/W	start frequency to 9.99	0.01[Hz]	
1018	0x5E	0x1239	02 (UINT)	A039	Jog mode stop	R/W	00: free-run stop (invalid during run) 01: controlled deceleration (invalid during run) 02: DC breaking to stop (invalid during run) 03: free-run stop (valid during run) 04: controlled deceleration (valid during run) 05: DC breaking to stop (valid during run)	-	
1018	0x60	0x123B	02 (UINT)	A041	Torque boost select	R/W	00: manual torque boost 01: automatic torque boost	-	
1018	0x61	0x123C	02 (UINT)	A042	Manual torque boost value	R/W	0 to 200	0.1[%]	
1018	0x62	0x123D	02 (UINT)	A043	Manual torque boost frequency	R/W	0 to 500	0.1[%]	
1018	0x63	0x123E	02 (UINT)	A044	V/f characteristic curve	R/W	00: constant torque 01: reduced torque 02: free V/f 03: sensorless vector (SLV)	-	
1018	0x64	0x123F	02 (UINT)	A045	V/f gain	R/W	20 to 100	1[%]	
1018	0x65	0x1240	02 (UINT)	A046	Voltage compensation gain for automatic torque boost	R/W	0 to 255	1[%]	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1018	0x66	0x1241	02 (UINT)	A047	Slip compensation gain for automatic torque boost	R/W	0 to 255	1[%]	
1018	0x6A	0x1245	02 (UINT)	A051	DC braking enable	R/W	00: disable 01: enable during stop 02: output frequency (A052)	-	
1018	0x6B	0x1246	02 (UINT)	A052	DC braking frequency	R/W	0 to 6000	0.01[Hz]	
1018	0x6C	0x1247	02 (UINT)	A053	DC braking wait time	R/W	0 to 50	0.1[s]	
1018	0x6D	0x1248	02 (UINT)	A054	DC braking force for deceleration	R/W	0 to 100	1[%]	
1018	0x6E	0x1249	02 (UINT)	A055	DC braking time for deceleration	R/W	0 to 600	0.1[s]	
1018	0x6F	0x124A	02 (UINT)	A056	DC braking / edge or level detection for [DB] input	R/W	00: edge detection 01: level detection	-	
1018	0x70	0x124B	02 (UINT)	A057	DC braking force at start	R/W	0 to 100	1[%]	
1018	0x71	0x124C	02 (UINT)	A058	DC braking time at start	R/W	0 to 600	0.1[s]	
1018	0x72	0x124D	02 (UINT)	A059	Carrier frequency during DC braking	R/W	20 to 150	0.1[kHz]	
2018	0x74	0x124F	04 (UDINT)	A061	Frequency upper limit	R/W	0 or frequency lower limit (A062) to the maximum frequency (A004)	0.01[Hz]	
2018	0x76	0x1251	04 (UDINT)	A062	Frequency lower limit	R/W	0 or start frequency (b082) to frequency upper limit (A061)	0.01[Hz]	
2018	0x78	0x1253	04 (UDINT)	A063	Jump frequency (center) 1	R/W	0 to 40000	0.01[Hz]	
1018	0x7A	0x1255	02 (UINT)	A064	Jump frequency width (hysteresis) 1	R/W	0 to 1000	0.01[Hz]	
2018	0x7B	0x1256	04 (UDINT)	A065	Jump frequency (center) 2	R/W	0 to 40000	0.01[Hz]	
1018	0x7D	0x1258	02 (UINT)	A066	Jump frequency width (hysteresis) 2	R/W	0 to 1000	0.01[Hz]	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
2018	0x7E	0x1259	04 (UDINT)	A067	Jump frequency (center) 3	R/W	0 to 40000	0.01[Hz]	
1018	0x80	0x125B	02 (UINT)	A068	Jump frequency width (hysteresis) 3	R/W	0 to 1000	0.01[Hz]	
2018	0x81	0x125C	04 (UDINT)	A069	Acceleration hold frequency	R/W	0 to 40000	0.01[Hz]	
1018	0x83	0x125E	02 (UINT)	A070	Acceleration hold time	R/W	0 to 600	0.1[s]	
1018	0x84	0x125F	02 (UINT)	A071	PID select	R/W	00: disable 01: enable 02: enable with reverse output	-	
1018	0x85	0x1260	02 (UINT)	A072	PID proportional gain	R/W	2 to 2500	0.01	
1018	0x86	0x1261	02 (UINT)	A073	PID integral time constant	R/W	0 to 36000	0.1[s]	
1018	0x87	0x1262	02 (UINT)	A074	PID derivative time constant	R/W	0 to 10000	0.0 1 [s]	
1018	0x88	0x1263	02 (UINT)	A075	PV scale conversion	R/W	1 to 9999	0.01	
1018	0x89	0x1264	02 (UINT)	A076	PV source	R/W	00: [OI] terminal (current in) 01: [O] terminal (voltage in) 02: Modbus network 03: Pulse train input 10: Calculate function output	-	
1018	0x8A	0x1265	02 (UINT)	A077	Reverse PID action	R/W	00: disabled 01: enabled	-	
1018	0x8B	0x1266	02 (UINT)	A078	PID output limit	R/W	0 to 1000	0.1[%]	
1018	0x8C	0x1267	02 (UINT)	A079	PID feed forward selection	R/W	00: disable 01: [O] terminal (voltage in) 02: [OI] terminal (current in)	-	
1018	0x8E	0x1269	02 (UINT)	A081	AVR function select	R/W	00: enabled 01: disabled 02: enabled except during deceleration	-	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1018	0x8F	0x126A	02 (UINT)	A082	AVR voltage select	R/W	00: 200 01: 215 02: 220 03: 230 04: 240	-	
1018	0x90	0x126B	02 (UINT)	A083	AVR filter time constant	R/W	0 to 10000	0.001[s]	
1018	0x91	0x126C	02 (UINT)	A084	AVR deceleration gain	R/W	50 to 200	1[%]	
1018	0x92	0x126D	02 (UINT)	A085	Energy-saving operation mode	R/W	00: normal operation 01: energy-saving operation	-	
1018	0x93	0x126E	02 (UINT)	A086	Energy-saving mode tuning	R/W	0 to 1000	0.1[%]	
2018	0x99	0x1274	04 (UDINT)	A092	Acceleration time (2)	R/W	1 to 360000	0.01[s]	
2018	0x9B	0x1276	04 (UDINT)	A093	Deceleration time (2)	R/W	1 to 360000	0.01[s]	
1018	0x9D	0x1278	02 (UINT)	A094	Select method to switch to Acc2/Dec2 profile	R/W	00: 2CH input from the terminal 01: transition frequency 02: forward and reverse	-	
2018	0x9E	0x1279	04 (UDINT)	A095	Acc1 to Acc2 frequency transition point	R/W	0 to 40000	0.01[Hz]	
2018	0xA0	0x127B	04 (UDINT)	A096	Dec1 to Dec2 frequency transition point	R/W	0 to 40000	0.01[Hz]	
1018	0xA2	0x127D	02 (UINT)	A097	Acceleration curve selection	R/W	00: linear 01: S-curve 02: U-curve 03: inverse U-curve 04: EL S-curve	-	
1018	0xA3	0x127E	02 (UINT)	A098	Deceleration curve selection	R/W	00: linear 01: S-curve 02: U-curve 03: inverse U-curve 04: EL S-curve	-	
2018	0xA6	0x1281	04 (UDINT)	A101	[OI] input active range start frequency	R/W	0 to 40000	0.01[Hz]	
2018	0xA8	0x1283	04 (UDINT)	A102	[OI] input active range end frequency	R/W	0 to 40000	0.01[Hz]	

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Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1018	0xAA	0x1285	02 (UINT)	A103	[OI] input active range start current	R/W	0 to 100	1[%]	
1018	0xAB	0x1286	02 (UINT)	A104	[OI] input active range end current	R/W	0 to 100	1[%]	
1018	0xAC	0x1287	02 (UINT)	A105	[OI] input start frequency select	R/W	00: offset (A101 value) 01: 0[Hz]	-	
1018	0xCA	0x12A5	02 (UINT)	A131	Acceleration curve constant	R/W	01 to 10	-	
1018	0xCB	0x12A6	02 (UINT)	A132	Deceleration curve constant	R/W	01 to 10	-	
1018	0xD4	0x12AF	02 (UINT)	A141	A input select for calculate function	R/W	00: operator 01: volume 02: terminal [O] input 03: terminal [OI] input 04: Modbus network 05: option 07: pulse train input	-	
1018	0xD5	0x12B0	02 (UINT)	A142	B input select for calculate function	R/W	00: operator 01: volume 02: terminal [O] input 03: terminal [OI] input 04: Modbus network 05: option 07: pulse train input	-	
1018	0xD6	0x12B1	02 (UINT)	A143	Calculation symbol	R/W	00: ADD (A141 + A142) 01: SUB (A141 - A142) 02: MUL (A141 x A142)	-	
2018	0xD8	0x12B3	04 (UDINT)	A145	ADD frequency	R/W	0 to 40000	0.01[Hz]	
1018	0xDA	0x12B5	02 (UINT)	A146	ADD direction select	R/W	00: plus (output frequency + A145) 01: minus (output frequency - A145)	-	
1018	0xDE	0x12B9	02 (UINT)	A150	Curvature of EL-S-curve at the start of acceleration	R/W	0 to 50	1[%]	✓
1018	0xDF	0x12BA	02 (UINT)	A151	Curvature of EL-S-curve at the end of acceleration	R/W	0 to 50	1[%]	✓
1018	0xE0	0x12BB	02 (UINT)	A152	Curvature of EL-S-curve at the start of deceleration	R/W	0 to 50	1[%]	✓

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1018	0xE1	0x12BC	02 (UINT)	A153	Curvature of EL-S-curve at the end of deceleration	R/W	0 to 50	1[%]	✓
2018	0xE2	0x12BD	04 (UDINT)	A154	Deceleration hold frequency	R/W	0 to 40000	0.01[Hz]	
1018	0xE4	0x12BF	02 (UINT)	A155	Deceleration hold time	R/W	0 to 600	0.1[s]	
2018	0xE5	0x12C0	04 (UDINT)	A156	PID sleep function action threshold	R/W	0 to 40000	0.01[Hz]	
1018	0xE7	0x12C2	02 (UINT)	A157	PID sleep function action delay time	R/W	0 to 255	0.1[s]	
2018	0xEB	0x12C6	04 (UDINT)	A161	[VR] input active range start frequency	R/W	0 to 40000	0.01[Hz]	
2018	0xED	0x12C8	04 (UDINT)	A162	[VR] input active range end frequency	R/W	0 to 40000	0.01[Hz]	
1018	0xEF	0x12CA	02 (UINT)	A163	[VR] input active range start %	R/W	0 to 100	1[%]	
1018	0xF0	0x12CB	02 (UINT)	A164	[VR] input active range end %	R/W	0 to 100	1[%]	
1018	0xF1	0x12CC	02 (UINT)	A165	[VR] input start frequency select	R/W	00: offset (A161 value) 01: 0 [Hz]	-	
1034	0x46	0x2201	02 (UINT)	A201	Frequency source, 2 <sup>nd</sup> motor	R/W	00: volume 01: control terminal 02: function F001 setting 03: Modbus network input 04: option board 06: pulse train input 07: EzSQ 10: calculate function output	-	
1034	0x47	0x2202	02 (UINT)	A202	Run command source, 2 <sup>nd</sup> motor	R/W	00: control terminal 01: run key on the keypad, or digital operator 02: Modbus network input 03: option	-	

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Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1034	0x48	0x2203	02 (UINT)	A203	Base frequency, 2 <sup>nd</sup> motor	R/W	300 to the 2 <sup>nd</sup> maximum frequency (A204)	0.1[Hz]	
1034	0x49	0x2204	02 (UINT)	A204	Maximum frequency, 2 <sup>nd</sup> motor	R/W	300 to 4000	0.1[Hz]	
2034	0x5B	0x2216	04 (UDINT)	A220	Multi-speed frequency 0, 2 <sup>nd</sup> motor	R/W	0 or start frequency to the 2 <sup>nd</sup> maximum frequency (A204)	0.01[Hz]	
1034	0x80	0x223B	02 (UINT)	A241	Torque boost select, 2 <sup>nd</sup> motor	R/W	00: manual torque boost 01: automatic torque boost	-	
1034	0x81	0x223C	02 (UINT)	A242	Manual torque boost value, 2 <sup>nd</sup> motor	R/W	0 to 200	0.1[%]	
1034	0x82	0x223D	02 (UINT)	A243	Manual torque boost frequency, 2 <sup>nd</sup> motor	R/W	0 to 500	0.1[%]	
1034	0x83	0x223E	02 (UINT)	A244	V/f characteristic curve, 2 <sup>nd</sup> motor	R/W	00: constant torque 01: reduced torque 02: free V/f 03: sensorless vector (SLV)	-	
1034	0x84	0x223F	02 (UINT)	A245	V/f gain, 2 <sup>nd</sup> motor	R/W	20 to 100	1[%]	
1034	0x85	0x2240	02 (UINT)	A246	Voltage compensation gain for automatic torque boost, 2 <sup>nd</sup> motor	R/W	0 to 255	1[%]	
1034	0x86	0x2241	02 (UINT)	A247	Slip compensation gain for automatic torque boost, 2 <sup>nd</sup> motor	R/W	0 to 255	1[%]	
2034	0x94	0x224F	04 (UDINT)	A261	Frequency upper limit, 2 <sup>nd</sup> motor	R/W	0 or frequency lower limit (A062) to the 2 <sup>nd</sup> maximum frequency (A204)	0.01[Hz]	
2034	0x96	0x2251	04 (UDINT)	A262	Frequency lower limit, 2 <sup>nd</sup> motor	R/W	0 or start frequency (B082) to frequency upper limit 2 <sup>nd</sup> motor (A261)	0.01[Hz]	
1034	0xAE	0x2269	02 (UINT)	A281	AVR function select, 2 <sup>nd</sup> motor	R/W	00: enabled 01: disabled 02: enabled except during deceleration	-	

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Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1034	0xAF	0x226A	02 (UINT)	A282	AVR voltage select, 2 <sup>nd</sup> motor	R/W	00: 200 01: 215 02: 220 03: 230 04: 240	-	
2034	0xB4	0x226F	04 (UDINT)	A292	Acceleration time (2), 2 <sup>nd</sup> motor	R/W	1 to 360000	0.01[s]	
2034	0xB6	0x2271	04 (UDINT)	A293	Deceleration time (2), 2 <sup>nd</sup> motor	R/W	1 to 360000	0.01[s]	
1034	0xB8	0x2273	02 (UINT)	A294	Select method to switch to Acc2/Dec2 profile, 2 <sup>nd</sup> motor	R/W	00: 2CH input from the terminal 01: transition frequency 02: forward and reverse	-	
2034	0xB9	0x2274	04 (UDINT)	A295	Acc1 to Acc2 frequency transition point, 2 <sup>nd</sup> motor	R/W	0 to 40000	0.01[Hz]	
2034	0xBB	0x2276	04 (UDINT)	A296	Dec1 to Dec2 frequency transition point, 2 <sup>nd</sup> motor	R/W	0 to 40000	0.01[Hz]	

### Function mode: group b

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1019	0x28	0x1301	02 (UINT)	b001	Restart mode on power failure / under-voltage trip	R/W	00: alarm output after trip, no automatic restart. 01: restart at 0[Hz] 02: resume operation after frequency matching. 03: resume previous frequency after frequency matching, then decelerate to stop and display trip information 04: resume operation after active frequency matching	-	
1019	0x29	0x1302	02 (UINT)	b002	Allowable under-voltage power failure time	R/W	3 to 250	0.1[s]	



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Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1019	0x2A	0x1303	02 (UINT)	b003	Retry wait time before motor restart	R/W	3 to 1000	0.1[s]	
1019	0x2B	0x1304	02 (UINT)	b004	Instantaneous power failure / under-voltage trip alarm enable	R/W	00: disabled 01: enabled 02: disabled during stop and decelerates to a stop	-	
1019	0x2C	0x1305	02 (UINT)	b005	Number of restarts on power failure / under-voltage trip events	R/W	00: restart 16 times 01: always restart	-	
2019	0x2E	0x1307	04 (UDINT)	b007	Restart frequency threshold	R/W	0 to 40000	0.01[Hz]	
1019	0x30	0x1309	02 (UINT)	b008	Restart mode on over voltage / over current trip	R/W	00: alarm output after trip, no automatic restart. 01: restart at 0[Hz] 02: resume operation after frequency matching. 03: resume previous frequency after frequency matching, then decelerate to stop and display trip information 04: resume operation after active frequency matching	-	
1019	0x32	0x130B	02 (UINT)	b010	Number of retry on over voltage / over current trip	R/W	1 to 3	1[times]	
1019	0x33	0x130C	02 (UINT)	b011	Retry wait time on over voltage / over current trip	R/W	3 to 1000	0.1[s]	
1019	0x34	0x130D	02 (UINT)	b012	Level of electronic thermal	R/W	200 to 1000	0.1[%]	
1019	0x35	0x130E	02 (UINT)	b013	Electronic thermal characteristic	R/W	00: reduced torque 01: constant torque 02: free setting	-	

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Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1019	0x37	0x1310	02 (UINT)	b015	Free setting electronic thermal frequency 1	R/W	0 to 400	1[Hz]	
1019	0x38	0x1311	02 (UINT)	b016	Free setting electronic thermal current 1	R/W	0 to 1000	0.1[%]	
1019	0x39	0x1312	02 (UINT)	b017	Free setting electronic thermal frequency 2	R/W	0 to 400	1[Hz]	
1019	0x3A	0x1313	02 (UINT)	b018	Free setting electronic thermal current 2	R/W	0 to 1000	0.1[%]	
1019	0x3B	0x1314	02 (UINT)	b019	Free setting electronic thermal frequency 3	R/W	0 to 400	1[Hz]	
1019	0x3C	0x1315	02 (UINT)	b020	Free setting electronic thermal current 3	R/W	0 to 1000	0.1[%]	
1019	0x3D	0x1316	02 (UINT)	b021	Overload restriction operation mode	R/W	00: disabled 01: enabled for acceleration and constant speed 02: enabled for constant speed only 03: enabled for acceleration and constant speed, increase speed at regeneration	-	
1019	0x3E	0x1317	02 (UINT)	b022	Overload restriction level	R/W	200 to 2000	0.1[%]	
1019	0x3F	0x1318	02 (UINT)	b023	Deceleration rate at overload restriction	R/W	1 to 30000	0.1[s]	
1019	0x40	0x1319	02 (UINT)	b024	Overload restriction operation mode 2	R/W	00: disabled 01: enabled for acceleration and constant speed 02: enabled for constant speed only 03: enabled for acceleration and constant speed, increase speed at regeneration	-	

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Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1019	0x41	0x131A	02 (UINT)	b025	Overload restriction level 2	R/W	200 to 2000	0.1[%]	
1019	0x42	0x131B	02 (UINT)	b026	Deceleration rate 2 at overload restriction	R/W	1 to 30000	0.1[s]	
1019	0x43	0x131C	02 (UINT)	b027	OC suppression selection	R/W	00: disabled 01: enabled	-	
1019	0x44	0x131D	02 (UINT)	b028	Current level of active freq. matching	R/W	200 to 2000	0.1[%]	
1019	0x45	0x131E	02 (UINT)	b029	Deceleration rate of active freq. matching	R/W	1 to 30000	0.1[s]	
1019	0x46	0x131F	02 (UINT)	b030	Start freq. of active freq. matching	R/W	00: frequency at previous shutoff 01: start from the maximum frequency 02: start from set frequency	-	
1019	0x47	0x1320	02 (UINT)	b031	Software lock mode selection	R/W	00: all parameters except b031 are locked when [SFT] terminal is ON 01: all parameters except b031 and output frequency F001 are locked when [SFT] terminal is ON 02: all parameters except b031 are locked 03: all parameters except b031 and output frequency F001 are locked 10: high level access including b031	-	
1019	0x49	0x1322	02 (UINT)	b033	Motor cable length parameter	R/W	5 to 20	-	
2019	0x4A	0x1323	04 (UDINT)	b034	Run/power ON warning time	R/W	0 to 65535	10[h]	
1019	0x4C	0x1325	02 (UINT)	b035	Rotation direction restriction	R/W	00: no restriction 01: reverse rotation is restricted 02: forward rotation is restricted	-	

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Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1019	0x4D	0x1326	02 (UINT)	b036	Reduced voltage start selection	R/W	0 to 255	1	
1019	0x4E	0x1327	02 (UINT)	b037	Function code display restriction	R/W	00: full display 01: function-specific display 02: user setting (and B037) 03: data comparison display 04: basic display 05: monitor display only	-	
1019	0x4F	0x1328	02 (UINT)	b038	Initial display selection	R/W	000: initial display selection by SET key 001 to 060: d001 to d060 201: F001	-	
1019	0x50	0x1329	02 (UINT)	b039	Automatic user parameter registration	R/W	00: disabled 01: enabled	-	
1019	0x51	0x132A	02 (UINT)	b040	Torque limit selection	R/W	00: quadrant-specific setting mode 01: terminal-switching mode 02: analog voltage input mode [O] 03: option board	-	✓
1019	0x52	0x132B	02 (UINT)	b041	Torque limit 1 (fwd/power)	R/W	0 to 200 / 255 (no)	1[%]	✓
1019	0x53	0x132C	02 (UINT)	b042	Torque limit 2 (rev/regen.)	R/W	0 to 200 / 255 (no)	1[%]	✓
1019	0x54	0x132D	02 (UINT)	b043	Torque limit 3 (rev/power)	R/W	0 to 200 / 255(no)	1[%]	✓
1019	0x55	0x132E	02 (UINT)	b044	Torque limit 4 (fwd/regen.)	R/W	0 to 200 / 255(no)	1[%]	✓
1019	0x56	0x132F	02 (UINT)	b045	Torque LAD STOP selection	R/W	00: disabled 01: enabled	-	✓
1019	0x57	0x1330	02 (UINT)	b046	Reverse run protection	R/W	00: disabled 01: enabled	-	✓
1019	0x5A	0x1333	02 (UINT)	b049	Dual Rating Selection	R/W	Do not use this object.	-	✓

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Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1019	0x5B	0x1334	02 (UINT)	b050	Controlled deceleration on power loss	R/W	00: disabled 01: enabled (decelerates to a stop) 02: enabled (decelerates to a stop with DC bus voltage - controlled) 03: enabled (decelerates to a stop with DC bus voltage controlled, then restart)		
1019	0x5C	0x1335	02 (UINT)	b051	DC bus voltage trigger level of ctrl. decel.	R/W	0 to 10000	0.1[V]	
1019	0x5D	0x1336	02 (UINT)	b052	Over-voltage threshold of ctrl. decel.	R/W	0 to 10000	0.1[V]	
2019	0x5E	0x1337	04 (UDINT)	b053	Deceleration time of ctrl. decel.	R/W	1 to 360000	0.01[s]	
1019	0x60	0x1339	02 (UINT)	b054	Initial freq. drop of ctrl. decel.	R/W	0 to 1000	0.01[Hz]	
1019	0x66	0x133F	02 (UINT)	b060	Maximum-limit level of window comparator (O)	R/W	0 to 100 (minimum-limit level: $b061 + b062 * 2$ )[%]	1[%]	
1019	0x67	0x1340	02 (UINT)	b061	Minimum-limit level of window comparator (O)	R/W	0 to 100 (maximum-limit level: $b060 - b062 * 2$ )[%]	1[%]	
1019	0x68	0x1341	02 (UINT)	b062	Hysteresis width of window comparator (O)	R/W	0 to 10 (maximum-limit level: $(b061 - b062) / 2$ )[%]	1[%]	
1019	0x69	0x1342	02 (UINT)	b063	Maximum-limit level of window comparator (OI)	R/W	0 to 100 (minimum-limit level: $b064 + b066 * 2$ )[%]	1[%]	
1019	0x6A	0x1343	02 (UINT)	b064	Minimum-limit level of window comparator (OI)	R/W	0 to 100 (maximum-limit level: $b063 - b066 * 2$ )[%]	1[%]	
1019	0x6B	0x1344	02 (UINT)	b065	Hysteresis width of window comparator (OI)	R/W	0 to 10 (maximum-limit level: $(b063 - b064) / 2$ )[%]	1[%]	

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Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1019	0x70	0x1349	02 (UINT)	b070	Operation level at O disconnection	R/W	0 to 100 / 255(no)	1[%]	
1019	0x71	0x134A	02 (UINT)	b071	Operation level at OI disconnection	R/W	0 to 100 / 255(no)	1[%]	
1019	0x75	0x134E	02 (UINT)	b075	Ambient temperature setting	R/W	-10 to 50	1[°C]	
1019	0x78	0x1351	02 (UINT)	b078	Watt-hour clearance	R/W	00: OFF 01: ON (press STR then clear)	-	
1019	0x79	0x1352	02 (UINT)	b079	Watt-hour display gain	R/W	1 to 1000	1	
1019	0x7C	0x1355	02 (UINT)	b082	Start frequency	R/W	10 to 999	0.01[Hz]	
1019	0x7D	0x1356	02 (UINT)	b083	Carrier frequency	R/W	20 to 150	0.1[kHz]	
1019	0x7E	0x1357	02 (UINT)	b084	Initialization mode (parameters or trip history)	R/W	00: initialization disabled 01: clears trip history 02: initializes all parameters 03: clears trip history and initialize all parameters 04: clears tip history and initializes all parameters and EZSQ program	-	
1019	0x7F	0x1358	02 (UINT)	b085	Country for initialization	R/W	00: mode 0 01: mode 1	-	
1019	0x80	0x1359	02 (UINT)	b086	Frequency scaling conversion factor	R/W	1 to 9999	0.01	
1019	0x81	0x135A	02 (UINT)	b087	STOP key enable	R/W	00: enabled 01: disabled 02: enabled only reset	-	
1019	0x82	0x135B	02 (UINT)	b088	Restart mode after FRS	R/W	00: restart from 0[Hz] 01: restart form frequency detected from real speed of motor (frequency matching) 02: restart from frequency detected from real speed of motor (active frequency matching)	-	

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Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1019	0x83	0x135C	02 (UINT)	b089	Automatic carrier frequency reduction	R/W	00: disabled 01: enabled, depending on the output current 02: enabled, depending on the heat-sink temperature	-	
1019	0x84	0x135D	02 (UINT)	b090	Dynamic braking usage ratio	R/W	0 to 1000	0.1[%]	
1019	0x85	0x135E	02 (UINT)	b091	Stop mode selection	R/W	00: DEC (decelerate to stop) 01: FRS (free-run to stop)	-	
1019	0x86	0x135F	02 (UINT)	b092	Cooling fan control	R/W	disabled	-	
1019	0x87	0x1360	02 (UINT)	b093	Clear elapsed time of cooling fan	R/W	disabled	-	
1019	0x88	0x1361	02 (UINT)	b094	Initialization target data	R/W	00: all parameters 01: all parameters except in/output terminals and communication. 02: only registered parameters in U**** 03: all parameters except registered parameters in U*** and b037	-	
1019	0x89	0x1362	02 (UINT)	b095	Dynamic braking control (BRD) selection	R/W	00: disabled 01: enable during run only 02: enable always	-	
1019	0x8A	0x1363	02 (UINT)	b096	BRD activation level	R/W	330 to 380	1[V]	
1019	0x8B	0x1364	02 (UINT)	b097	BRD resistor value	R/W	Minimum resistance[ohm] to 600.0[ohm]	0.1[ohm]	
1019	0x8E	0x1367	02 (UINT)	b100	Free V/F setting, freq.1	R/W	0 to free V/F setting, frequency 2 (b102)	1[Hz]	
1019	0x8F	0x1368	02 (UINT)	b101	Free V/F setting, voltage.1	R/W	0 to 8000	0.1[V]	
1019	0x90	0x1369	02 (UINT)	b102	Free V/F setting, freq.2	R/W	0 to free V/F setting, frequency 3 (b104)	1[Hz]	
1019	0x91	0x136A	02 (UINT)	b103	Free V/F setting, voltage.2	R/W	0 to 8000	0.1[V]	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1019	0x92	0x136B	02 (UINT)	b104	Free V/F setting, freq.3	R/W	0 to free V/F setting, frequency 4 (b106)	1[Hz]	
1019	0x93	0x136C	02 (UINT)	b105	Free V/F setting, voltage.3	R/W	0 to 8000	0.1[V]	
1019	0x94	0x136D	02 (UINT)	b106	Free V/F setting, freq.4	R/W	0 to free V/F setting, frequency 5 (b108)	1[Hz]	
1019	0x95	0x136E	02 (UINT)	b107	Free V/F setting, voltage.4	R/W	0 to 8000	0.1[V]	
1019	0x96	0x136F	02 (UINT)	b108	Free V/F setting, freq.5	R/W	0 to free V/F setting, frequency 6 (b110)	1[Hz]	
1019	0x97	0x1370	02 (UINT)	b109	Free V/F setting, voltage.5	R/W	0 to 8000	0.1[V]	
1019	0x98	0x1371	02 (UINT)	b110	Free V/F setting, freq.6	R/W	0 to free V/F setting, frequency 7 (b112)	1[Hz]	
1019	0x99	0x1372	02 (UINT)	b111	Free V/F setting, voltage.6	R/W	0 to 8000	0.1[V]	
1019	0x9A	0x1373	02 (UINT)	b112	Free V/F setting, freq.7	R/W	0 to 400	1[Hz]	
1019	0x9B	0x1374	02 (UINT)	b113	Free V/F setting, voltage.7	R/W	0 to 8000	0.1[V]	
1019	0xA2	0x137B	02 (UINT)	b120	Brake control enable	R/W	00: disabled 01: enabled	-	
1019	0xA3	0x137C	02 (UINT)	b121	Brake Wait Time for Release	R/W	0 to 500	0.01[s]	
1019	0xA4	0x137D	02 (UINT)	b122	Brake Wait Time for Acceleration	R/W	0 to 500	0.01[s]	
1019	0xA5	0x137E	02 (UINT)	b123	Brake Wait Time for Stopping	R/W	0 to 500	0.01[s]	
1019	0xA6	0x137F	02 (UINT)	b124	Brake Wait Time for Confirmation	R/W	0 to 500	0.01[s]	
1019	0xA7	0x1380	02 (UINT)	b125	Brake release freq.	R/W	0 to 400	0.01[Hz]	
1019	0xA8	0x1381	02 (UINT)	b126	Brake release current	R/W	0 to 2000	0.1[%]	
1019	0xA9	0x1382	02 (UINT)	b127	Braking freq. setting	R/W	0 to 40000	0.01[Hz]	



## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1019	0xAC	0x1385	02 (UINT)	b130	Deceleration overvoltage suppression enable	R/W	00: disabled 01: enabled 02: enabled with acceleration	-	
1019	0xAD	0x1386	02 (UINT)	b131	Decel. overvolt. suppress level	R/W	330 to 390	1[V]	
1019	0xAE	0x1387	02 (UINT)	b132	Decel. overvolt. suppress const.	R/W	10 to 3000	0.01[s]	
1019	0xAF	0x1388	02 (UINT)	b133	Decel. overvolt. suppress proportional gain	R/W	0 to 500	0.01	
1019	0xB0	0x1389	02 (UINT)	b134	Decel. overvolt. suppress integral time	R/W	0 to 1500	0.1[s]	
1019	0xBB	0x1394	02 (UINT)	b145	GS input mode	R/W	00: no trip (hardware shutoff only) 01: trip	-	
1019	0xC0	0x1399	02 (UINT)	b150	Display ex.operator connected	R/W	1 to 0x60 (d001 to d060)	-	
1019	0xCA	0x13A3	02 (UINT)	b160	1st parameter of Dual Monitor	R/W	1 to 0x30 (d001 to d030)	-	
1019	0xCB	0x13A4	02 (UINT)	b161	2nd parameter of Dual Monitor	R/W	1 to 0x30 (d001 to d030)	-	
1019	0xCD	0x13A5	02 (UINT)	b163	Frequency set in monitoring	R/W	00: disabled 01: enabled	-	
1019	0xCE	0x13A6	02 (UINT)	b164	Automatic return to the initial display	R/W	00: disabled 01: enabled	-	
1019	0xCF	0x13A7	02 (UINT)	b165	Ex. operator com. loss action	R/W	00: trip 01: trip after deceleration to a stop 02: ignored 03: coasting (FRS) 04: decelerations to a trip	-	
1019	0xD0	0x13A8	02 (UINT)	b166	Data Read/Write select	R/W	00: read/write OK 01: protected	-	
1019	0xD5	0x13A9	02 (UINT)	b171	Inverter mode selection	R/W	00: no function 01: standard induction motor 03: permanent magnetic motor	-	✓

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1019	0xDE	0x13AE	02 (UINT)	b180	Initialization trigger	R/W	00: disabled 01: enabled	-	
1035	0x53	0x230C	02 (UINT)	b212	Level of electronic thermal, 2 <sup>nd</sup> motor	R/W	200 to 1000	0.1[%]	
1035	0x54	0x230D	02 (UINT)	b213	Electronic thermal characteristic, 2 <sup>nd</sup> motor	R/W	00: reduced torque 01: constant torque 02: free setting	-	
1035	0x5D	0x2316	02 (UINT)	b221	Overload restriction operation mode, 2 <sup>nd</sup> motor	R/W	00: disabled 01: enabled for acceleration and constant speed 02: enabled for constant speed only 03: enabled for acceleration and constant speed, increase speed at regeneration	-	
1035	0x5E	0x2317	02 (UINT)	b222	Overload restriction level, 2 <sup>nd</sup> motor	R/W	200 to 2000	0.1[%]	
1035	0x5F	0x2318	02 (UINT)	b223	Deceleration rate at overload restriction, 2 <sup>nd</sup> motor	R/W	1 to 30000	0.1[s]	

### Function mode: group C

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1020	0x2A	0x1401	02 (UINT)	C001	Input function [1]	R/W	00: Forward Run/Stop (FW)	-	
1020	0x2B	0x1402	02 (UINT)	C002	Input function [2]	R/W	01: Reverse Run/Stop (RV)	-	
1020	0x2C	0x1403	02 (UINT)	C003	Input function [3]	R/W	02: Multi-speed select 1 (CF1)	-	
1020	0x2D	0x1404	02 (UINT)	C004	Input function [4]	R/W	03: Multi-speed select 2 (CF2)	-	
1020	0x2E	0x1405	02 (UINT)	C005	Input function [5]	R/W	04: Multi-speed select 3 (CF3)	-	
1020	0x2F	0x1406	02 (UINT)	C006	Input function [6]	R/W	05: Multi-speed select 4 (CF4)	-	
1020	0x30	0x1407	02 (UINT)	C007	Input function [7]	R/W	06: Jogging (JG) 07: External DC breaking (DB) 08: Set (select) 2 <sup>nd</sup> motor data (SET) 09: 2-stage acceleration and	-	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
							deceleration (2CH) 11: free-run stop (FRS) 12: External trip (EXT) 13: unattended start protection (USP) 14: commercial power source switchover (CS) 15: software lock(SFT) 16: analog input voltage/current select (AT) 18: reset inverter (RS) 19: PTC thermistor thermal protection , C005 only (PTC) 20: start, 3-wire interface (STA) 21: stop, 3-wire interface (STP) 22: FWD, REV, 3-wire interface (F/R) 23: PID disable(PID) 24: PID reset (PIDC) 27: remote control up function (UP) 28: remote control down function (DOWN) 29: remote control data clearing (UDC) 31: operator control (OPE) 32: multi-speed select, bit operation bit 1 (SF1) 33: multi-speed select, bit operation bit 2 (SF2) 34: multi-speed select, bit operation bit 3(SF3) 35: multi-speed select, bit operation bit 4(SF4) 36: multi-speed select, bit operation bit 5(SF5) 37: multi-speed select, bit operation bit 6(SF6) 38: multi-speed select, bit operation bit 7(SF7) 39: overload restriction source changeover (OLR) 40: torque limit selection (TL) 41: torque limit switch 1 (TQR1) 42: torque limit switch 2 (TQR2) 44: brake confirmation		

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
							(BOK) 46: LAD cancellation (LAC) 47: pulse counter clear (PCLR) 50: ADD frequency enable (A145) (ADD) 51: force terminal mode (F-TM) 52: enable torque command input (ATR) 53: clear watt-hour data (KHC) 56: general purpose input 1 (MI1) 57: general purpose input 2 (MI2) 58: general purpose input 3 (MI3) 59: general purpose input 4 (MI4) 60: general purpose input 5 (MI5) 61: general purpose input 6 (MI6) 62: general purpose input 7 (MI7) 65: analog command hold (AHD) 66: multistage-position switch 1 (CP1) 67: multistage-position switch 2 (CP2) 68: multistage-position switch 3 (CP3) 69: limit signal of homing (ORL) 70: trigger signal of homing (ORG) 73: speed/position changeover (SPD) 77: GS1 input (GS1) 78: GS2 input (GS2) 81: start EzCOM (485) 82: executing EzSQ program (PRG) 83: retain output frequency (HLD) 84: permission of Run command (ROK) 85: rotation direction detection, C007 only (EB) 86: display limitation (DISP)		

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
							no: no function (NO)		
1020	0x34	0x140B	02 (UINT)	C011	Input active state [1]	R/W	00: NO 01: NC	-	
1020	0x35	0x140C	02 (UINT)	C012	Input active state [2]	R/W	00: NO 01: NC	-	
1020	0x36	0x140D	02 (UINT)	C013	Input active state [3]	R/W	00: NO 01: NC	-	
1020	0x37	0x140E	02 (UINT)	C014	Input active state [4]	R/W	00: NO 01: NC	-	
1020	0x38	0x140F	02 (UINT)	C015	Input active state [5]	R/W	00: NO 01: NC	-	
1020	0x39	0x1410	02 (UINT)	C016	Input active state [6]	R/W	00: NO 01: NC	-	
1020	0x3A	0x1411	02 (UINT)	C017	Input active state [7]	R/W	00: NO 01: NC	-	
1020	0x3E	0x1415	02 (UINT)	C021	Output function [11]	R/W	00: Run signal (RUN) 01: frequency arrival type 1-constant speed (FA1)	-	
1020	0x3F	0x1416	02 (UINT)	C022	Output function [12]	R/W	02: frequency arrival type 2-over frequency (FA2) 03: overload advancr notice signal 1 (OL) 04: output deviation for PID signal (OD) 05: alarm signal (AL) 06: frequency arrival type 3-set frequency (FA3) 07: over/under torque signal (OTQ) 09: undervoltage (UV) 10: torque limit signal (TRQ) 11: Run time expired (RNT) 12: power ON time expired (ONT) 13: thermal warning (THM) 19: brake release signal (BRK) 20: brake error signal (BER) 21: 0[Hz] speed detection signal (ZS) 22: speed deviation excessive (DSE) 23: positioning completion (POK) 24: frequency arrival type 4-over frequency (FAT4) 25: frequency arrival	-	
1020	0x43	0x141A	02 (UINT)	C026	Alarm relay function	R/W		-	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
							type 5-set frequency (FAT5) 26: overload advance notice signal 2 (OL2) 27: analog voltage input disconnect detection (ODc) 28: analog current input disconnect detection (OIDc) 31: PID second stage output (FBV) 32: network disconnect detection (NDc) 33: logic output function 1 (LOG1) 34: logic output function 2 (LOG2) 35: logic output function 3 (LOG3) 39: capacitor life warning signal (WAC) 40: cooling fan warning signal (WAF) 41: starting contact signal (FR) 42: heat sink overheat warning (OHF) 43: low load detection (LOC) 44: general output 1 (MO1) 45: general output 2 (MO2) 46: general output 3 (MO3) 50: inverter ready signal (IRDY) 51: forward rotation (FWR) 52: reverse rotation (RVR) 53: major failure signal (MJA) 54: window comparator for analog voltage input (WCO) 55: window comparator for analog current input (WCOI) 58: frequency command source (FREF) 59: Run command source (REF)		

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
							60: 2 <sup>nd</sup> motor selection (SETM) 62: STO (Safe Torque OFF) performance monitor (output [11] only)(EDM) 63: option card output (OPO) no: no function (NO)		
1020	0x44	0x141B	02 (UINT)	C027	[EO] terminal selection (pulse/PWM output)	R/W	00: output frequency (PWM) 01: output current (PWM) 02: output torque (PWM) 03: output frequency (pulse train) 04: output voltage (PWM) 05: input power (PWM) 06: electronic thermal load ratio (PWM) 07: LAD frequency (PWM) 08: output current (pulse train) 10: heat sink temperature (PWM) 12: general output (PWM) 15: pulse train input monitor 16: option (PWM)	-	
1020	0x45	0x141C	02 (UINT)	C028	[AM] terminal selection (analog voltage output 0 to 10[V])	R/W	00: output frequency 01: output current 02: output torque 04: output voltage 05: input power 06: electronic thermal load ratio 07: LAD frequency 10: heat sink temperature 11: output torque (with code) 13: general output 16: option	-	
1020	0x47	0x141E	02 (UINT)	C030	Digital current monitor reference value	R/W	200 to 2000	0.1[%]	
1020	0x48	0x141F	02 (UINT)	C031	Output [11] active state	R/W	00: NO 01: NC	-	
1020	0x49	0x1420	02	C032	Output [12]	R/W	00: NO	-	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
			(UINT)		active state		01: NC		
1020	0x4D	0x1424	02 (UINT)	C036	Alarm relay active state	R/W	00: NO 01: NC	-	
1020	0x4F	0x1426	02 (UINT)	C038	Output mode of low current detection	R/W	00: during acceleration, deceleration and constant speed 01: during constant speed only	-	
1020	0x50	0x1427	02 (UINT)	C039	Low current detection level	R/W	0 to 2000	0.1[%]	
1020	0x51	0x1428	02 (UINT)	C040	Output mode of overload warning	R/W	00: during acceleration, deceleration and constant speed 01: during constant speed only	-	
1020	0x52	0x1429	20 (UINT)	C041	Overload warning level	R/W	0 to 2000	0.1[%]	
2020	0x53	0x142A	04 (UDINT)	C042	Frequency arrival setting for acceleration	R/W	0 to 40000	0.01[Hz]	
2020	0x55	0x142C	04 (UDINT)	C043	Frequency arrival setting for deceleration	R/W	0 to 40000	0.01[Hz]	
1020	0x57	0x142E	02 (UINT)	C044	PID deviation level	R/W	0 to 1000	0.1[%]	
2020	0x58	0x142F	04 (UDINT)	C045	Frequency arrival setting 2 for acceleration	R/W	0 to 40000	0.01[Hz]	
2020	0x5A	0x1431	04 (UDINT)	C046	Frequency arrival setting 2 for deceleration	R/W	0 to 40000	0.01[Hz]	
1020	0x5C	0x1433	02 (UINT)	C047	Pulse train input/output scale conversion	R/W	0 to 100	-	✓
1020	0x61	0x1438	02 (UINT)	C052	PID FBV output high limit	R/W	0 to 1000	0.1[%]	
1020	0x62	0x1439	02 (UINT)	C053	PID FBV output low limit	R/W	0 to 1000	0.1[%]	
1020	0x63	0x143A	02 (UINT)	C054	Over-torque/under-torque selection	R/W	00: over-torque 01: under-torque	-	✓
1020	0x64	0x143B	02 (UINT)	C055	Over/under-torque level (Forward	R/W	0 to 200	1[%]	✓



## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
					powering mode)				
1020	0x65	0x143C	02 (UINT)	C056	Over/under-torque level (Reverse regen. mode)	R/W	0 to 200	1[%]	✓
1020	0x66	0x143D	02 (UINT)	C057	Over/under-torque level (Reverse powering mode)	R/W	0 to 200	1[%]	✓
1020	0x67	0x143E	02 (UINT)	C058	Over/under-torque level (Forward regen. mode)	R/W	0 to 200	1[%]	✓
1020	0x68	0x143F	02 (UINT)	C059	Signal output mode of Over/under-torque	R/W	00: during acceleration, deceleration and constant speed 01: during constant speed only	-	✓
1020	0x6A	0x1441	02 (UINT)	C061	Electronic thermal warning level	R/W	0 to 100	1[%]	
1020	0x6C	0x1443	02 (UINT)	C063	Zero speed detection level	R/W	0 to 10000	0.01[Hz]	
1020	0x6D	0x1444	02 (UINT)	C064	Heat sink overheat warning	R/W	0 to 110	1[°C]	
1020	0x74	0x144B	02 (UINT)	C071	Communication speed	R/W	03: 2400[bps] 04: 4800[bps] 05: 9600[bps] 06: 19200[bps] 07: 38400[bps] 08: 57600[bps] 09: 76800[bps] 10: 115200[bps]	-	
1020	0x75	0x144C	02 (UINT)	C072	Modbus address	R/W	1 to 247	1	
1020	0x77	0x144E	02 (UINT)	C074	Communication parity	R/W	00: no parity 01: even parity 02: odd parity	-	
1020	0x78	0x144F	02 (UINT)	C075	Communication stop bit	R/W	01: 1[bit] 02: 2[bit]	-	
1020	0x79	0x1450	02 (UINT)	C076	Communication error select	R/W	00: trip 01: deceleration to a stop and trip 02: disabled 03: free run stop 04: deceleration to a stop	-	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1020	0x7A	0x1451	02 (UINT)	C077	Communication error time-out	R/W	0 to 9999	0.01[s]	
1020	0x7B	0x1452	02 (UINT)	C078	Communication wait time	R/W	0 to 1000	1[ms]	
1020	0x7E	0x1455	02 (UINT)	C081	O input span calibration	R/W	0 to 2000	0.1[%]	
1020	0x7F	0x1456	02 (UINT)	C082	O1 input span calibration	R/W	0 to 2000	0.1[%]	
1020	0x82	0x1459	02 (UINT)	C085	Thermistor input (PTC) span calibration	R/W	0 to 2000	0.1[%]	
1020	0x88	0x145F	02 (UINT)	C091	Debug mode enable	R/W	00: disabled 01: enabled	-	
1020	0x8D	0x1464	02 (UINT)	C096	Communication selection	R/W	00: Modbus-RTU 01: EzCOM 02: EzCOM (administrator)	-	
1020	0x8F	0x1466	02 (UINT)	C098	EzCOM start address of master	R/W	1 to 8	1	
1020	0x90	0x1467	02 (UINT)	C099	EzCOM end address of master	R/W	1 to 8	1	
1020	0x91	0x1468	02 (UINT)	C100	EzCOM starting trigger	R/W	00: input terminal 01: always	-	
1020	0x92	0x1469	02 (UINT)	C101	Up/Down memory mode selection	R/W	00: clear last frequency 01: keep last frequency adjusted by UP/DOWN	-	
1020	0x93	0x146A	02 (UINT)	C102	Reset selection	R/W	00: cancel trip state at input signal ON transition, stops inverter if in Run Mode 01: cancel trip state at signal OFF transition, stops inverter if in Run Mode 02: cancel trip state at input ON transition, no effect if in Run Mode 03: clear the memories only related to trip status	-	
1020	0x94	0x146B	02 (UINT)	C103	Restart mode after reset	R/W	00: start with 0 Hz 01: start with frequency matching 02: start with active frequency matching	-	
1020	0x95	0x146C	02 (UINT)	C104	UP/DWN clear mode	R/W	00: 0[Hz] 01: original setting (in	-	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
							the EEPROM memory at power on)		
1020	0x96	0x146D	02 (UINT)	C105	FM gain adjustment	R/W	50 to 200	1[%]	
1020	0x97	0x146E	02 (UINT)	C106	AM gain adjustment	R/W	50 to 200	1[%]	
1020	0x9A	0x1471	02 (UINT)	C109	AM bias adjustment	R/W	0 to 100	1[%]	
1020	0x9C	0x1473	02 (UINT)	C111	Overload warning level 2	R/W	0 to 2000	0.1[%]	
1020	0xAF	0x1486	02 (UINT)	C130	Output [11] on delay	R/W	0 to 1000	0.1[s]	
1020	0xB0	0x1487	02 (UINT)	C131	Output [11] off delay	R/W	0 to 1000	0.1[s]	
1020	0xB1	0x1488	02 (UINT)	C132	Output [12] on delay	R/W	0 to 1000	0.1[s]	
1020	0xB2	0x1489	02 (UINT)	C133	Output [12] off delay	R/W	0 to 1000	0.1[s]	
1020	0xB9	0x1490	02 (UINT)	C140	Relay output on delay	R/W	0 to 1000	0.1[s]	
1020	0xBA	0x1491	02 (UINT)	C141	Relay output off delay	R/W	0 to 1000	0.1[s]	
1020	0xBB	0x1492	02 (UINT)	C142	Logic output 1 operand A	R/W	All the programmable functions available for logic (discrete) outputs except LOG1 to LOG3, OPO, no	-	
1020	0xBC	0x1493	02 (UINT)	C143	Logic output 1 operand B	R/W	All the programmable functions available for logic (discrete) outputs except LOG1 to LOG3, OPO, no	-	
1020	0xBD	0x1494	02 (UINT)	C144	Logic output 1 operator	R/W	00: AND 01: OR 02: XOR	-	
1020	0xBE	0x1495	02 (UINT)	C145	Logic output 2 operand A	R/W	All the programmable functions available for logic (discrete) outputs except LOG1 to LOG3, OPO, no	-	
1020	0xBF	0x1496	02 (UINT)	C146	Logic output 2 operand B	R/W	All the programmable functions available for logic (discrete) outputs except LOG1 to LOG3, OPO, no	-	
1020	0xC0	0x1497	02 (UINT)	C147	Logic output 2 operator	R/W	00: AND 01: OR 02: XOR	-	
1020	0xC1	0x1498	02 (UINT)	C148	Logic output 3 operand A	R/W	All the programmable functions available for logic (discrete) outputs except LOG1 to LOG3, OPO, no	-	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1020	0xC2	0x1499	02 (UINT)	C149	Logic output 3 operand B	R/W	All the programmable functions available for logic (discrete) outputs except LOG1 to LOG3, OPO, no	-	
1020	0xC3	0x149A	02 (UINT)	C150	Logic output 3 operator	R/W	00: AND 01: OR 02: XOR	-	
1020	0xCD	0x14A4	02 (UINT)	C160	Input response time [1]	R/W	0 to 200	1	
1020	0xCE	0x14A5	02 (UINT)	C161	Input response time [2]	R/W	0 to 200	1	
1020	0xCF	0x14A6	02 (UINT)	C162	Input response time [3]	R/W	0 to 200	1	
1020	0xD0	0x14A7	02 (UINT)	C163	Input response time [4]	R/W	0 to 200	1	
1020	0xD1	0x14A8	02 (UINT)	C164	Input response time [5]	R/W	0 to 200	1	
1020	0xD2	0x14A9	02 (UINT)	C165	Input response time [6]	R/W	0 to 200	1	
1020	0xD3	0x14AA	02 (UINT)	C166	Input response time [7]	R/W	0 to 200	1	
1020	0xD6	0x14AB	02 (UINT)	C169	Multistage speed/position determination time	R/W	0 to 200	1	
1036	0x72	0x2429	02 (UINT)	C241	Overload warning level, 2 <sup>nd</sup> motor	R/W	0 to 2000	0.1[%]	

### Function mode: group H

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1021	0x2C	0x1501	02 (UINT)	H001	Auto-tuning selection	R/W	00: disabled 01: enabled with motor stop 02: enabled with motor rotation	-	✓
1021	0x2D	0x1502	02 (UINT)	H002	Motor constant selection	R/W	00: Hitachi standard motor 02: auto-tuning data	-	✓

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1021	0x2E	0x1503	02 (UINT)	H003	Motor capacity	R/W	00: 0.1[kW] 01: 0.2[kW] 02: 0.4[kW] 03: 0.55[kW] 04: 0.75[kW] 05: 1.1[kW] 06: 1.5[kW] 07: 2.2[kW] 08: 3.0[kW] 09: 3.7[kW] 10: 4.0[kW] 11: 5.5[kW] 12: 7.5[kW] 13: 11.0[kW] 14: 15.0[kW] 15: 18.5[kW]	-	
1021	0x2F	0x1504	02 (UINT)	H004	Motor poles setting	R/W	00: 2[P] 01: 4[P] 02: 6[P] 03: 8[P] 04: 10[P]	-	
1021	0x31	0x1506	02 (UINT)	H005	Motor speed response constant	R/W	1 to 1000	1[%]	✓
1021	0x32	0x1507	02 (UINT)	H006	Motor stabilization constant	R/W	0 to 255	1	
1021	0x41	0x1516	02 (UINT)	H020	Motor constant R1	R/W	1 to 65535	0.001[Ω]	✓
1021	0x43	0x1518	02 (UINT)	H021	Motor constant R2	R/W	1 to 65535	0.001[Ω]	✓
1021	0x45	0x151A	02 (UINT)	H022	Motor constant L	R/W	1 to 65535	0.01[mH]	✓
1021	0x47	0x151C	02 (UINT)	H023	Motor constant I0	R/W	1 to 65535	0.01[A]	✓
2021	0x48	0x151D	04 (UDINT)	H024	Motor constant J	R/W	1 to 9999000	0.001 [kgm <sup>2</sup> ]	✓
1021	0x50	0x1525	02 (UINT)	H030	Motor constant R1 (Auto tuned data)	R/W	1 to 65535	0.001[ohm]	✓
1021	0x52	0x1527	02 (UINT)	H031	Motor constant R2 (Auto tuned data)	R/W	1 to 65535	0.001[ohm]	✓
1021	0x54	0x152B	02 (UINT)	H032	Motor constant L (Auto tuned data)	R/W	1 to 65535	0.01[mH]	✓
1021	0x56	0x152B	02 (UINT)	H033	Motor constant I0 (Auto tuned data)	R/W	1 to 65535	0.01[A]	✓

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
2021	0x57	0x152C	04 (UDINT)	H034	Motor constant J (Auto tuned data)	R/W	1 to 9999000	0.001 [kgm <sup>2</sup> ]	✓
1021	0x68	0x153D	02 (UINT)	H050	Slip compensation P gain for V/f control with FB	R/W	0 to 10000	0.01	✓
1021	0x69	0x153E	02 (UINT)	H051	Slip compensation I gain for V/f control with FB	R/W	0 to 10000	1	✓
1021	0x9C	0x1571	02 (UINT)	H102	PM motor code setting	R/W	00: Hitachi standard motor 02: auto tuned data	-	✓
1021	0x9D	0x1572	02 (UINT)	H103	PM motor capacity	R/W	00: 0.1[kW] 01: 0.2[kW] 02: 0.4[kW] 03: 0.55[kW] 04: 0.75[kW] 05: 1.1[kW] 06: 1.5[kW] 07: 2.2[kW] 08: 3.0[kW] 09: 3.7[kW] 10: 4.0[kW] 11: 5.5[kW] 12: 7.5[kW] 13: 11.0[kW] 14: 15.0[kW] 15: 18.5[kW]	-	✓

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1021	0x9E	0x1573	02 (UINT)	H104	PM motor pole setting	R/W	00: 2[P] 01: 4[P] 02: 6[P] 03: 8[P] 04: 10[P] 05: 12[P] 06: 14[P] 07: 16[P] 08: 18[P] 09: 20[P] 10: 22[P] 11: 24[P] 12: 26[P] 13: 28[P] 14: 30[P] 15: 32[P] 16: 34[P] 17: 36[P] 18: 38[P] 19: 40[P] 20: 42[P] 21: 44[P] 22: 46[P] 23: 48[P]	-	✓
1021	0x9F	0x1574	02 (UINT)	H105	PM Rated Current	R/W	0 to 1000	0.1[%]	✓
1021	0xA0	0x1575	02 (UINT)	H106	PM const R (Resistance)	R/W	1 to 65535	0.001[ohm]	✓
1021	0xA1	0x1576	02 (UINT)	H107	PM const Ld (d-axis inductance)	R/W	1 to 65535	0.01[mH]	✓
1021	0xA2	0x1577	02 (UINT)	H108	PM const Lq (q-axis inductance)	R/W	1 to 65535	0.01[mH]	✓
1021	0xA3	0x1578	02 (UINT)	H109	PM const Ke (Induction voltage constant)	R/W	1 to 65535	0.0001 [Vpeak/(rad/s)]	✓
2021	0xA4	0x1579	04 (UDINT)	H110	PM const J (Moment of inertia)	R/W	1 to 9999000	0.001 [kgm <sup>2</sup> ]	✓
1021	0xA6	0x157B	02 (UINT)	H111	PM const R (Resistance, Auto)	R/W	1 to 65535	0.001[Ω]	✓
1021	0xA7	0x157C	02 (UINT)	H112	PM const Ld (d-axis inductance, Auto)	R/W	1 to 65535	0.01[mH]	✓
1021	0xA8	0x157D	02 (UINT)	H113	PM const Lq (q-axis inductance, Auto)	R/W	1 to 65535	0.01[mH]	✓
1021	0xAC	0x1581	02 (UINT)	H116	PM Speed Response	R/W	1 to 1000	1[%]	✓

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1021	0xAD	0x1582	02 (UINT)	H117	PM Starting Current	R/W	2000 to 10000	0.01[%]	✓
1021	0xAE	0x1583	02 (UINT)	H118	PM Starting Time	R/W	1 to 6000	0.01[s]	✓
1021	0xAF	0x1584	02 (UINT)	H119	PM Stabilization Constant	R/W	0 to 120	1[%]	✓
1021	0xB1	0x1586	02 (UINT)	H121	PM Minimum Frequency	R/W	0 to 255	0.1[%]	✓
1021	0xB2	0x1587	02 (UINT)	H122	PM No-Load Current	R/W	0 to 10000	0.01[%]	✓
1021	0xB3	0x1588	02 (UINT)	H123	PM Starting Method Select	R/W	00: disabled 01: enabled	-	✓
1021	0xB5	0x158A	02 (UINT)	H131	PM Initial Magnet Position Estimation 0V Wait Times	R/W	0 to 255	1	✓
1021	0xB6	0x158B	02 (UINT)	H132	PM Initial Magnet Position Estimation Detect Wait Times	R/W	0 to 255	1	✓
1021	0xB7	0x158C	02 (UINT)	H133	PM Initial Magnet Position Estimation Detect Times	R/W	0 to 255	1	✓
1021	0xB8	0x158D	02 (UINT)	H134	PM Initial Magnet Position Estimation Voltage Gain	R/W	0 to 255	1	✓
1037	0x4D	0x2502	02 (UINT)	H202	Motor constant selection, 2 <sup>nd</sup> motor	R/W	00: Hitachi standard motor 02: auto tuned data	-	✓



## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1037	0x4E	0x2503	02 (UINT)	H203	Motor capacity, 2 <sup>nd</sup> motor	R/W	00: 0.1[kW] 01: 0.2[kW] 02: 0.4[kW] 03: 0.55[kW] 04: 0.75[kW] 05: 1.1[kW] 06: 1.5[kW] 07: 2.2[kW] 08: 3.0[kW] 09: 3.7[kW] 10: 4.0[kW] 11: 5.5[kW] 12: 7.5[kW] 13: 11.0[kW] 14: 15.0[kW] 15: 18.5[kW]	-	
1037	0x4F	0x2504	02 (UINT)	H204	Motor poles setting, 2 <sup>nd</sup> motor	R/W	00: 2[P] 01: 4[P] 02: 6[P] 03: 8[P] 04: 10[P]	-	
1037	0x51	0x2506	02 (UINT)	H205	Motor speed response constant, 2 <sup>nd</sup> motor	R/W	1 to 1000	1[%]	✓
1037	0x52	0x2507	02 (UINT)	H206	Motor stabilization constant, 2 <sup>nd</sup> motor	R/W	0 to 255	1	
1037	0x61	0x2516	02 (UINT)	H220	Motor constant R1, 2 <sup>nd</sup> motor (Hitachi motor)	R/W	1 to 65535	0.001[ohm]	✓
1037	0x63	0x2518	02 (UINT)	H221	Motor constant R2, 2 <sup>nd</sup> motor (Hitachi motor)	R/W	1 to 65535	0.001[ohm]	✓
1037	0x65	0x251A	02 (UINT)	H222	Motor constant L, 2 <sup>nd</sup> motor (Hitachi motor)	R/W	1 to 65535	0.01[mH]	✓
1037	0x67	0x251C	02 (UINT)	H223	Motor constant I0, 2 <sup>nd</sup> motor (Hitachi motor)	R/W	1 to 65535	0.01[A]	✓
2037	0x68	0x251D	04 (UDINT)	H224	Motor constant J, 2 <sup>nd</sup> motor (Hitachi motor)	R/W	1 to 9999000	0.001 [kgm <sup>2</sup> ]	✓

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1037	0x70	0x2525	02 (UINT)	H230	Motor constant R1, 2nd motor (Auto tuned data)	R/W	1 to 65535	0.001[ohm]	✓
1037	0x72	0x2527	02 (UINT)	H231	Motor constant R2, 2nd motor (Auto tuned data)	R/W	1 to 65535	0.001[ohm]	✓
1037	0x74	0x2529	02 (UINT)	H232	Motor constant L, 2nd motor (Auto tuned data)	R/W	1 to 65535	0.01[mH]	✓
1037	0x76	0x252B	02 (UINT)	H233	Motor constant I0, 2nd motor (Auto tuned data)	R/W	1 to 65535	0.01[A]	✓
2037	0x77	0x252C	04 (UDINT)	H234	Motor constant J, 2nd motor (Auto tuned data)	R/W	1 to 9999000	0.001 [kgm <sup>2</sup> ]	✓

## Function mode: group P

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1022	0x2E	0x1601	02 (UINT)	P001	Reaction when option card error occurs	R/W	00: tripping 01: ignore the error (inverter continues operation)	-	
1022	0x30	0x1603	02 (UINT)	P003	[EA] terminal selection	R/W	00: speed reference (included PID) 01: for control with encoder feedback 02: extended terminal for EzSQ	-	✓
1022	0x31	0x1604	02 (UINT)	P004	Pulse train input mode selection for feedback	R/W	00: Single-phase pulse [EA] 01: 2-phase pulse (90 degrees difference) 1 ([EA] and [EB]) 02: 2-phase pulse (90 degrees difference) 2 ([EA] and [EB]) 03: Single-phase pulse [EA] and direction signal [EB]	-	✓
1022	0x38	0x160B	02 (UINT)	P011	Encoder pulse setting	R/W	32 to 1024	1	✓

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1022	0x39	0x160C	02 (UINT)	P012	Simple positioning selection	R/W	00: simple positioning deactivated 02: simple positioning activated	-	✓
1022	0x3C	0x160F	02 (UINT)	P015	Creep Speed	R/W	Start frequency (b082) to 1000	0.01[Hz]	✓
1022	0x47	0x161A	02 (UINT)	P026	Over-speed error detection level	R/W	0 to 1500	0.1[%]	✓
1022	0x48	0x161B	02 (UINT)	P027	Speed deviation error detection level	R/W	0 to 12000	0.01[Hz]	✓
1022	0x4C	0x161F	02 (UINT)	P031	Deceleration time Input Type	R/W	00: operator 03: EzSQ	-	
1022	0x4E	0x1621	02 (UINT)	P033	Torque command input selection	R/W	00: analog voltage input [O] 01: analog voltage input [OI] 03: operator 06: option	-	✓
1022	0x4F	0x1622	02 (UINT)	P034	Torque command level input	R/W	0 to 200	1[%]	✓
1022	0x51	0x1624	02 (UINT)	P036	Torque bias mode selection	R/W	00: no bias 01: operator 05: option	-	✓
1022	0x52	0x1625	02 (UINT)	P037	Torque bias value setting	R/W	-200 to 200	1[%]	✓
1022	0x53	0x1626	02 (UINT)	P038	Torque bias polar selection	R/W	00: according to the sign 01: according to the rotation direction	-	✓
1022	0x55	0x1628	02 (UINT)	P039	Speed limit of Torque control (Forward rotation)	R/W	0 to 12000	0.01[Hz]	✓
1022	0x57	0x162A	02 (UINT)	P040	Speed limit of Torque control (Forward rotation)	R/W	0 to 12000	0.01[Hz]	✓
1022	0x58	0x162B	02 (UINT)	P041	Speed Torque control switching time	R/W	0 to 1000	1[ms]	✓

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1022	0x5B	0x162E	02 (UINT)	P044	Communication watchdog timer (for option)	R/W	0 to 9999	0.01[s]	
1022	0x5C	0x162F	02 (UINT)	P045	Inverter action on communication error (for option)	R/W	00: tripping 01: tripping after decelerating and stopping the motor 02: ignoring errors 03: stopping after free running 04: decelerating and stopping the motor	-	
1022	0x60	0x1633	02 (UINT)	P049	Motor poles setting for RPM	R/W	00: 01: 2[P] 02: 4[P] 03: 6[P] 04: 8[P] 05: 10[P] 06: 12[P] 07: 14[P] 08: 16[P] 09: 18[P] 10: 20[P] 11: 22[P] 12: 24[P] 13: 26[P] 14: 28[P] 15: 30[P] 16: 32[P] 17: 34[P] 18: 36[P] 19: 38[P] 20: 40[P] 21: 42[P] 22: 44[P] 23: 46[P] 24: 48[P]	-	
1022	0x66	0x1639	02 (UINT)	P055	Pulse train input frequency scale setting	R/W	10 to 320	0.1[kHz]	✓
1022	0x67	0x163A	02 (UINT)	P056	Pulse train input frequency filter time constant setting	R/W	1 to 200	0.01[s]	✓
1022	0x68	0x163B	02 (UINT)	P057	Pulse train input bias setting	R/W	-100 to 100	1[%]	✓

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1022	0x69	0x163C	02 (UINT)	P058	Limitation of the pulse train input setting	R/W	0 to 100	1[%]	✓
2022	0x6B	0x163E	04 (DINT)	P060	Multistage position 0	R/W	Position range (reverse: P073) to position range (reverse)	1	✓
2022	0x6D	0x1640	04 (DINT)	P061	Multistage position 1	R/W		1	✓
2022	0x6F	0x1642	04 (DINT)	P062	Multistage position 2	R/W		1	✓
2022	0x71	0x1644	04 (DINT)	P063	Multistage position 3	R/W		1	✓
2022	0x73	0x1646	04 (DINT)	P064	Multistage position 4	R/W		1	✓
2022	0x75	0x1648	04 (DINT)	P065	Multistage position 5	R/W		1	✓
2022	0x77	0x164A	04 (DINT)	P066	Multistage position 6	R/W		1	✓
2022	0x79	0x164C	04 (DINT)	P067	Multistage position 7	R/W		1	✓
1022	0x7B	0x164E	02 (UINT)	P068	Homing mode selection	R/W	00: low speed mode 01: high speed mode	-	✓
1022	0x7C	0x164F	02 (UINT)	P069	Homing direction	R/W	00: forward rotation mode 01: reverse rotation mode	-	✓
1022	0x7D	0x1650	02 (UINT)	P070	Low speed homing frequency	R/W	0 to 1000	0.01[Hz]	✓
1022	0x7E	0x1651	02 (UINT)	P071	High speed homing frequency	R/W	0 to 40000	0.01[Hz]	✓
2022	0x7F	0x1652	04 (DINT)	P072	Position range (forward)	R/W	0 to 268435455	1	✓
2022	0x81	0x1654	04 (DINT)	P073	Position range (reverse)	R/W	-268435455 to 0	1	✓
1022	0x84	0x1657	02 (UINT)	P075	Positioning mode selection	R/W	00: with limitation 01: no limitation	-	✓
1022	0x86	0x1659	02 (UINT)	P077	Encoder disconnection timeout	R/W	0 to 100	0.1[s]	✓
1022	0xBB	0x168E	02 (UINT)	P140	EzCOM number of data	R/W	1 to 5	-	
1022	0xBC	0x168F	02 (UINT)	P141	EzCOM destination 1 address	R/W	1 to 247	-	
1022	0xBD	0x1690	02 (UINT)	P142	EzCOM destination 1 register	R/W	0x0000 to 0xFFFF	-	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1022	0xBE	0x1691	02 (UINT)	P143	EzCOM source register	1 R/W	0x0000 to 0xFFFF	-	
1022	0xBF	0x1692	02 (UINT)	P144	EzCOM destination addresss	2 R/W	1 to 247	-	
1022	0xC0	0x1693	02 (UINT)	P145	EzCOM destination register	2 R/W	0x0000 to 0xFFFF	-	
1022	0xC1	0x1694	02 (UINT)	P146	EzCOM source register	2 R/W	0x0000 to 0xFFFF	-	
1022	0xC2	0x1695	02 (UINT)	P147	EzCOM destination addresss	3 R/W	1 to 247	-	
1022	0xC3	0x1696	02 (UINT)	P148	EzCOM destination register	3 R/W	0x0000 to 0xFFFF	-	
1022	0xC4	0x1697	02 (UINT)	P149	EzCOM source register	3 R/W	0x0000 to 0xFFFF	-	
1022	0xC5	0x1698	02 (UINT)	P150	EzCOM destination addresss	4 R/W	1 to 247	-	
1022	0xC6	0x1699	02 (UINT)	P151	EzCOM destination register	4 R/W	0x0000 to 0xFFFF	-	
1022	0xC7	0x169A	02 (UINT)	P152	EzCOM source register	4 R/W	0x0000 to 0xFFFF	-	
1022	0xC8	0x169B	02 (UINT)	P153	EzCOM destination addresss	5 R/W	1 to 247	-	
1022	0xC9	0x169C	02 (UINT)	P154	EzCOM destination register	5 R/W	0x0000 to 0xFFFF	-	
1022	0xCA	0x169D	02 (UINT)	P155	EzCOM source register	5 R/W	0x0000 to 0xFFFF	-	
1022	0xCF	0x16A2	02 (UINT)	P160	Option command register write 1	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xD0	0x16A3	02 (UINT)	P161	Option command register write 2	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xD1	0x16A4	02 (UINT)	P162	Option command register write 3	I/F to R/W	0x0000 to 0xFFFF	-	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1022	0xD2	0x16A5	02 (UINT)	P163	Option command register write 4	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xD3	0x16A6	02 (UINT)	P164	Option command register write 5	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xD4	0x16A7	02 (UINT)	P165	Option command register write 6	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xD5	0x16A8	02 (UINT)	P166	Option command register write 7	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xD6	0x16A9	02 (UINT)	P167	Option command register write 8	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xD7	0x16AA	02 (UINT)	P168	Option command register write 9	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xD8	0x16AB	02 (UINT)	P169	Option command register write 10	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xD9	0x16AC	02 (UINT)	P170	Option command register read 1	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xDA	0x16AD	02 (UINT)	P171	Option command register read 2	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xDB	0x16AE	02 (UINT)	P172	Option command register read 3	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xDC	0x16AF	02 (UINT)	P173	Option command register read 4	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xDD	0x16B0	02 (UINT)	P174	Option command register read 5	I/F to R/W	0x0000 to 0xFFFF	-	
1022	0xDE	0x16B1	02 (UINT)	P175	Option command register read 6	I/F to R/W	0x0000 to 0xFFFF	-	

## Appendix PROFIBUS Object List

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1022	0xDF	0x16B2	02 (UINT)	P176	Option command register read 7	I/F R/W	0x0000 to 0xFFFF	-	
1022	0xE0	0x16B3	02 (UINT)	P177	Option command register read 8	I/F R/W	0x0000 to 0xFFFF	-	
1022	0xE1	0x16B4	02 (UINT)	P178	Option command register read 9	I/F R/W	0x0000 to 0xFFFF	-	
1022	0xE2	0x16B5	02 (UINT)	P179	Option command register read 10	I/F R/W	0x0000 to 0xFFFF	-	

### Operator display omitted:

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 only
1000	0x04	0x0003	02	-	Inverter status A	R	00 to 09	-	
1000	0x05	0x0004	02 (UINT)	-	Inverter status B	R	00 to 02	-	
1000	0x06	0x0005	02 (UINT)	-	Inverter status C	R	00 to 10	-	
1000	0x07	0x0006	02 (UINT)	-	PID feedback	R/W	0 to 10000	-	

### Optional interface:

Index	Sub-index	Register number	Size [bite]	Function code	Name	R/W	Description and range	Resolution	WJ200 Only
1030	0x3E	0x1E01	02 (UINT)	-	Coil data 1	R	0x0000 to 0xFFFF	-	
1030	0x3F	0x1E02	02 (UINT)	-	Coil data 2	R	0x0000 to 0xFFFF	-	
1030	0x40	0x1E03	02 (UINT)	-	Coil data 3	R	0x0000 to 0xFFFF	-	
1030	0x41	0x1E04	02 (UINT)	-	Coil data 4	R	0x0000 to 0xFFFF	-	
1030	0x42	0x1E05	02 (UINT)	-	Coil data 5	R	0x0000 to 0xFFFF	-	
1031	0x40	0x1F01	02 (UINT)	-	Coil data 0	R/W	0x0000 to 0xFFFF	-	
1031	0x52	0x1F13	02 (UINT)	-	Setting output terminals	R/W	0x0000 to 0xFFFF	-	

### PROFIdrive area



## Appendix PROFIBUS Object List

Index	Sub-index	Size [bite]	Name	R/W	Description and range	Default setting
915	0	UINT	Selection switch for DO IO Data in the setpoint telegram	R	0x0000 : STW1 The other :Modbus register No. of WJ200 / WL200	0x0000
	1	UINT	Selection switch for DO IO Data in the setpoint telegram	R	0x0000 : NSOLL_A The other :Modbus register No. of WJ200 / WL200	0x0000
	2-9	UINT	Selection switch for DO IO Data in the setpoint telegram	R	0x0000 : Unused The other :Modbus register No. of WJ200 / WL200	0x0000
916	0	UINT	Selection switch for DO IO Data in the actual value telegram	R	0x0000 : STW1 The other :Modbus register No. of WJ200 / WL200	0x0000
	1	UINT	Selection switch for DO IO Data in the actual value telegram	R	0x0000 : NSOLL_A The other :Modbus register No. of WJ200 / WL200	0x0000
	2-9	UINT	Selection switch for DO IO Data in the actual value telegram	R	0x0000 : Unused The other :Modbus register No. of WJ200 / WL200	0x0000
918		UINT	Node address	R	Node address of WJ-PB	126
922		UINT	Telegram selection	R	1 : Standard telegram 1 103 : WJ-PB telegram 103 104 : WJ-PB telegram 104 105 : WJ-PB telegram 105	1
944		UINT	Fault message counter	R	The number of times that fault buffer is changes.	0
947	0x00-0x3F	UINT	Fault number	R	Fault number list that occurred in WJ200 / WL200 and WJ-PB.	1
952		UINT	Fault situation counter	RW	The number of fault situation since power on or the last reset. This parameter can be written only 0.	0
953		UINT	Warning parameters	R	Warning of WJ200 / WL200	0
954		UINT	Warning parameters	R	Warning of WJ-PB	0
963		UINT	Actual baud rate	R	Actual baud rate of PROFIBUS 0 : 9.6 kbit/s 1 : 19.2 kbit/s 2 : 93.75 kbit/s 3 : 187.5 kbit/s 4 : 500 kbit/s 6 : 1500 kbit/s 7 : 3000 kbit/s 8 : 6000 kbit/s 9 : 12000 kbit/s 11 : 45.45 kbit/s	0
964			Drive Unit identification		The information of WJ-PB	-
	0x00	UINT	Manufacturer	R	PROFIBUS vendor code	617
	0x01	UINT	Drive Unit type	R	Drive unit type code of WJ-PB is 0X0EFD.	0x0EFD
	0x02	UINT	Version (Software)	R	When version is xx.yy, this parameter is xxyy (decimal).	depends on shipment time

## Appendix PROFIBUS Object List

Index	Sub-index	Size [bite]	Name	R/W	Description and range	Default setting
	0x03	UINT	Firmware date (year)	R	Year (decimal) that firmware of WJ-PB was created.	depends on shipment time
	0x04	UINT	Firmware date (day/month)	R	Day/month (ddmm : decimal) that firmware of WJ-PB was created.	depends on shipment time
965		STR (2 characters)	Telegram selection	R	Profile number and profile version that WJ-PB supports.	0x32A