

Parameter Setup Tool

Parameter Assistant

Instruction Manual

Thank you for purchasing Shimaden products. Please read and understand this Instruction Manual before you use this tool.

Preface

This Instruction Manual describes the basic functions of and operating instructions for the parameter setup tool "Parameter Assistant" for the SR23/FP23 Series Controllers. This instruction manual is written for a Windows XP environment.

Controllers to be covered

The Parameter Assistant is provided for the SR23/FP23 Series Controllers.

Intended Audience

This Instruction Manual is meant for Instrumentation and control engineers and those involved in routine maintenance of Instrumentation and control equipment and who have certain knowledge concerning the function of the SR23/FP23 Series and literacy in Windows 2000/XP/Vista/7 operation.

Reference Material

Reference material related to the Parameter Assistant is as follows. Please refer to it as necessary:

SR23 Series Digital Controller Instruction Manual (Detailed version)

FP23 Series Programmable Controller Instruction Manual (Detailed version)

SR23 Series Digital Controller Communication (Interface)
Instruction Manual (Detailed version)

FP23 Series Programmable Controller Communication (Interface)
Instruction Manual (Detailed version)

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- We, Shimaden Co., Ltd., do not assume any liability for damage or any other kind of indirect damage caused by you or any third party due to the use of this product or any (unpredictable) defect of this product (resulting from improper or prohibited use). Please be aware of this and follow the instructions carefully.

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1. Outline

Parameter Assistant is PC software for setting up the parameters of the SR23/FP23 series controller through a PC.

You may easily and intuitively set up the parameters of SR23/FP23 Series Controllers by using the parameter setup tool Parameter Assistant.

You may also manage parameters you have set up by using a PC.

You may use Parameter Assistant on your PC with Windows 2000/XP/Vista/7.

For the operation method of your PC and the Windows operating system, please refer to the relevant instruction manual.

1.1. Outline of Functions

Parameter Assistant has various functions such as:

Setup of Parameters

Set up parameters consisting of the functions of SR23/FP23 Series Controllers.

Reading out and Writing in a controller

You may read out parameters of SR23/FP23 Series Controllers and write parameters you set up into said controller from your PC.

Storing of Parameter Data

You may store any parameter you set up with Parameter Assistant or those you read from SR23/FP23 Series Controllers in your PC's hard disk, floppy disk or any other storage media.

Setup of program pattern and time signal

Parameter Assistant allows you to set up the relevant parameters of the program pattern and time signal of FP23 Series Controllers.

1.2. Required Specifications

PC Environment

PC: IBM PC/AT compatible with Windows 2000/XP/Vista/7

OS (Operating System): Windows 2000 (Professional)/XP (Home Edition/Professional)/
Windows Vista/Windows 7

CPU: Pentium Processor 300MHz or higher processor recommended

Main memory: 128MB or larger

Hard disk space: For the program: 10MB or larger

For parameter data: 2MB or larger

CRT: 800 x 600 pixels or more, color display: 65536 or higher recommended; small font to be used

RS-232C Communication port: 1 channel (to be selected from COM1-10)

Dedicated Adapter

Communication method:

Controller : Infrared communication

PC : USB port

2. Setup

This chapter describes how to set up Parameter Assistant.

2.1. Installation

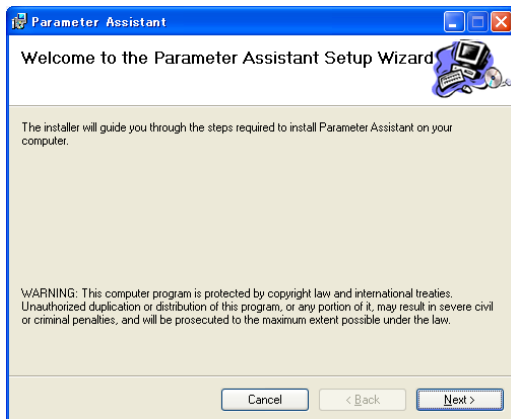
Note

- Close all applications currently running on your PC before starting installation.
 - Log on with a user name belonging to the Administrator's group (only single byte characters allowed).
 - This program may not run properly if logging on with a user name not belonging to the Administrator's group.
-

Start Windows.

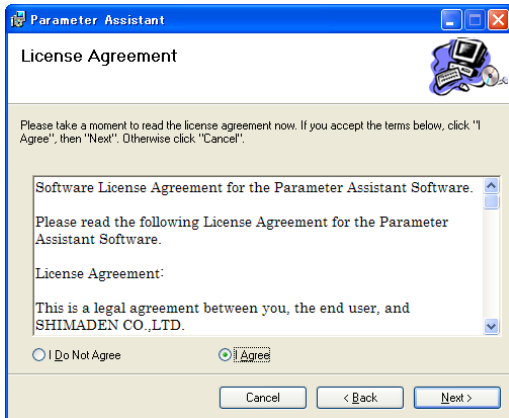
Please decompress the compressed file Parameter Assistant downloaded from the Shimaden website and run "Setup.exe." Then, perform the setup by following the messages displayed in the dialog box.

Should the preparation for installation be completed, a dialogue box "Parameter Assistant Setup Wizard" (Fig. 2-1) will be displayed.

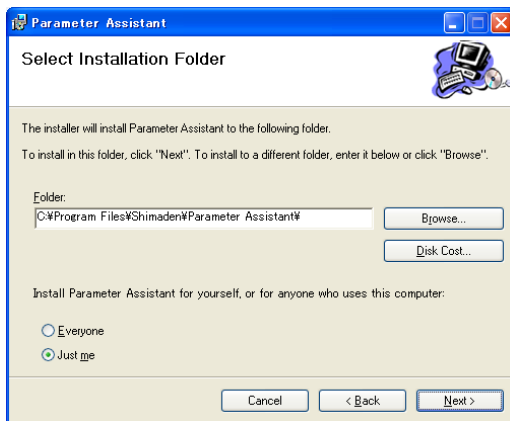


For canceling setup, click the button [Cancel].

For continuing setup, click the button [Next], then dialogue box "License Agreement" (Fig. 2-2) will be displayed.



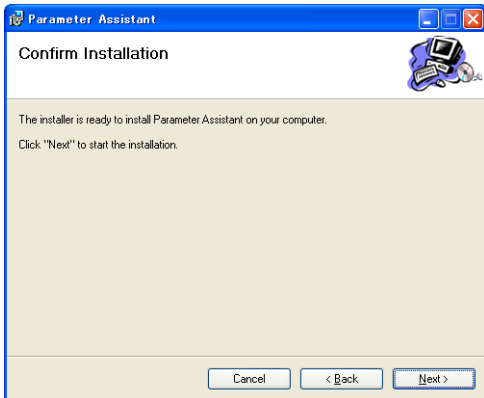
After you read the agreement, select the button [I Agree] and click the [Next] button, then the dialogue box "Select Installation Folder" (Fig. 2-3) will be displayed.



For changing the installation folder, click the [Browse ...] button.

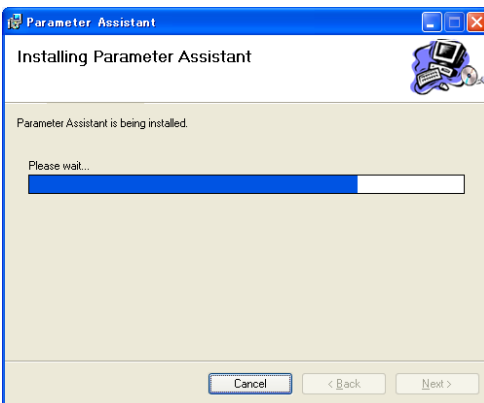
Specify the folder where you want to install Parameter Assistant. For canceling setup, click the button [Cancel].

By clicking the button [Next], the dialogue box "Confirm Installation" (Fig. 2-4) will be displayed.

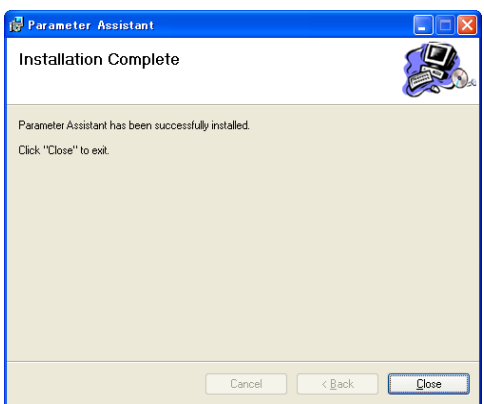


For canceling setup, click the button [Cancel].

By clicking the button [Next], the dialogue box "Installing Parameter Assistant" (Fig. 2-5) will be displayed.



When the file copying process is completed, the dialogue box "Installation Complete" (Fig. 2-6) will be displayed. Click [Close] to complete the installation.



Make sure [Parameter Assistant] is registered on the Windows desktop menu as well as [Start menu] -> [Program] -> [Shimaden Soft] at the end.

2.2. Uninstallation

Start Windows.

Select [Control Panel] from [Windows start] menu -> [Setting].

Double click on the icon [New Application and Uninstallation of Application] from Windows Control Panel.

Select [Parameter Assistant], then click on [Add & Delete] button.

Now, proceed with the steps following the messages indicated on the dialogue box.

3. Connecting controllers with PC

There are two ways for connecting the SR23/FP23 Series Controllers with a PC, i.e. using the infrared communication interface located on the front panel and using the RS-485/RS-232C communication terminal located at the back.

3.1. Method via controller infrared interface

Infrared communication is available through Infrared Communication Adapter S5004 (optional, to be purchased separately). Install the communication adapter driver before using S5004.

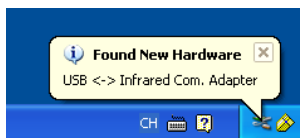
3.1.1. Installation of USB driver

3.1.1.1. Connection

Connect S5004 to your PC.

When connecting the device, "Found New Hardware" is displayed on the task tray.

*This instruction is for Windows XP. It may not be able to install as instructed here for Windows 7. If so, please read 3.1.3 [When USB is not working properly].

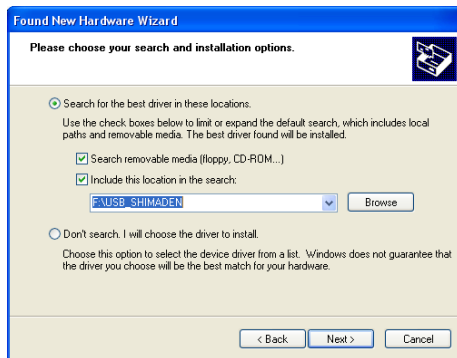


3.1.1.2. Choosing location

[Found New Hardware Wizard] screen will be displayed.

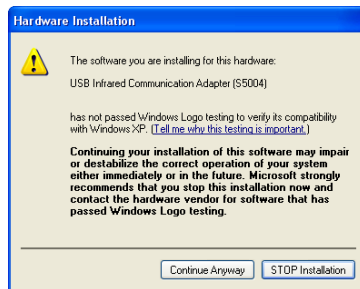


Select [Install from a list or specific location (Advanced)], then go to the next screen.



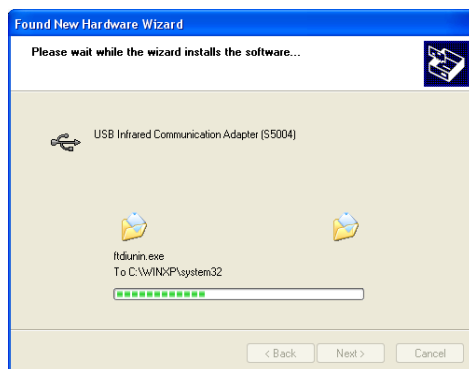
Specify the folder where the driver is located at the space found under [Include this location in the search], then go to the next screen.

3.1.1.3. Affirmation of logo test



Even though a warning for affirming the logo test is displayed, please proceed by clicking [Continue Anyway].

3.1.1.4. Confirmation of completion



[Please wait while the wizard installs the software ...] screen will be displayed.



When [Completing the Found New Hardware Wizard] screen is displayed, the installation has been completed. Click on the [Finish].

Install USB virtual COM port successively.

3.1.2. Installation of USB virtual COM port

3.1.2.1. Connection

Connect the S5004 to your PC. (Please leave as connected if the installation is to be done successively after the procedure for 3.1.1.)

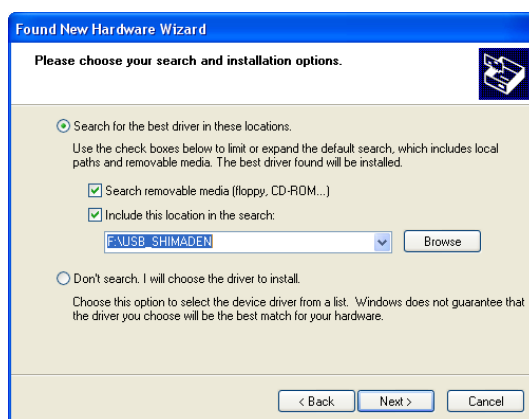
When connecting the device, "Found New Hardware" is displayed on the task tray.



3.1.2.2. Choosing location



Select [Install from a list or specific location (Advanced)] for the installation method, then go to next.



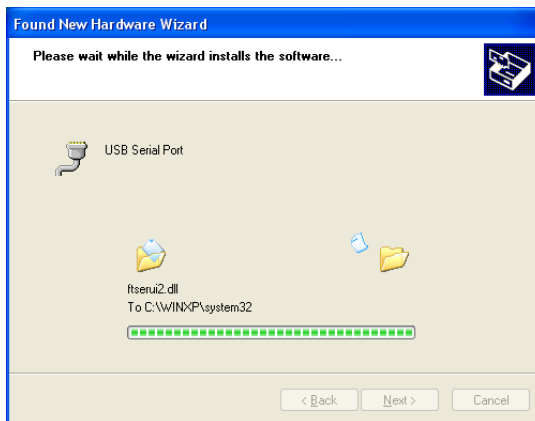
Specify the folder where the driver is located at the space found under [Include this location in the search], then go to next.

3.1.2.3. Affirmation of logo test

Even though a warning for affirming logo test is displayed, please continue by clicking [Continue Anyway].



3.1.2.4. Confirmation of completion



[Please wait while the wizard installs the software ...] screen will be displayed.



When [Completing the Found New Hardware Wizard] screen is displayed, the installation has been completed. Click on the [Finish].

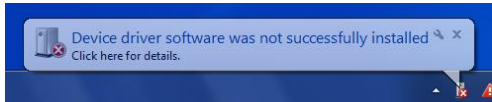
3.1.3. When a USB is not working properly.

This part demonstrates a responsive method when a USB is not working properly.

*This instruction is for Windows 7.

3.1.3.1. Connection

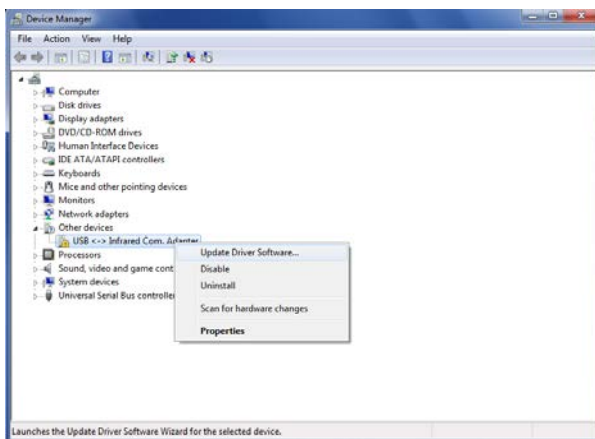
If the dialog below appears when connecting a USB port on your PC and the S5004 main unit, install the driver from the [Device manager].



3.1.3.2 USB <-> Infrared Com. Adapter Update Driver Software

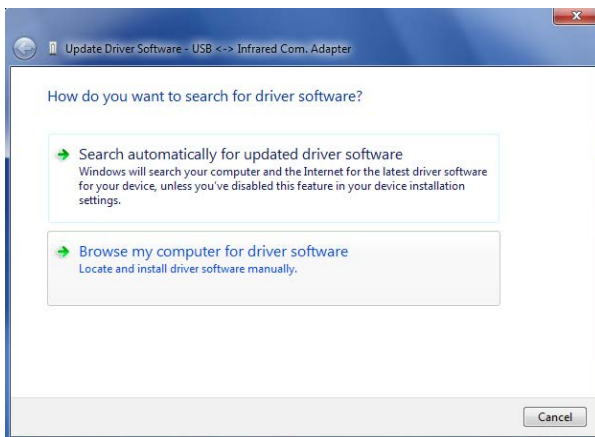
"USB <-> Infrared Com. Adapter" can be found in [Other devices] in the Device manager.

Display the menu by right-clicking it and select the [Update Driver Software].



3.1.3.3. Specify the location to browse

Select [Browse my computer for driver software].



Specify the driver software to update and click the [Next] button.

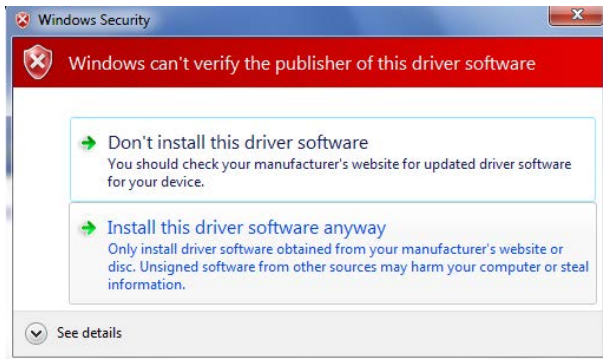


Example: C:\SHIMADEN USB Drivers\for WinXP_7 Ver2.08.30

*Browse initiation command may differ according to PC you have.

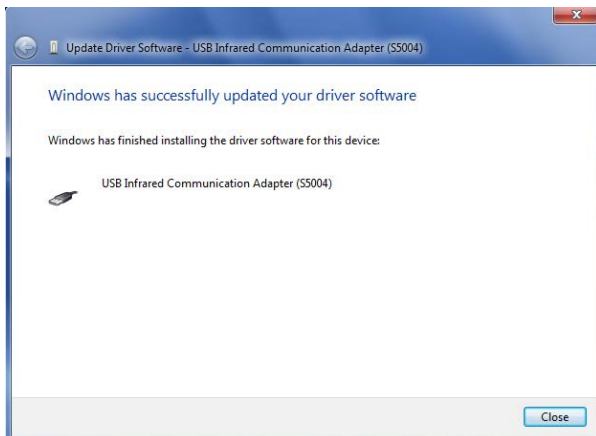
3.1.3.4. Warning dialog

When a warning dialog appears, select [Install this driver software anyway].



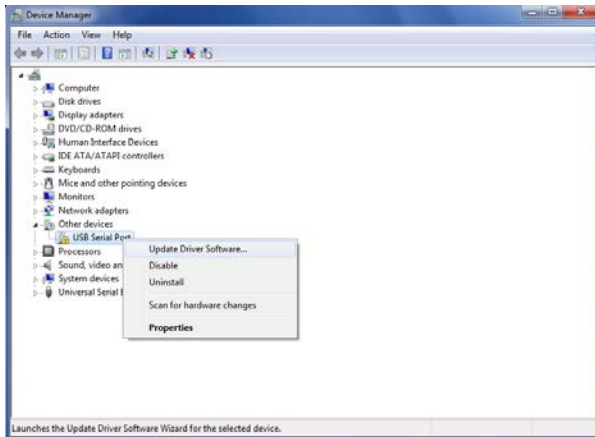
3.1.3.5. Confirm the completion

The dialog for updating driver software will appear. Click the [Close] button.



3.1.3.6 USB Serial Port Driver Software Update

“USB Serial Port” can be found on [Other devices] in Device manager. Display the menu by right-clicking it and select [Update Driver Software]. Then repeat the same procedure from 3.1.3.3. to 3.1.3.5.

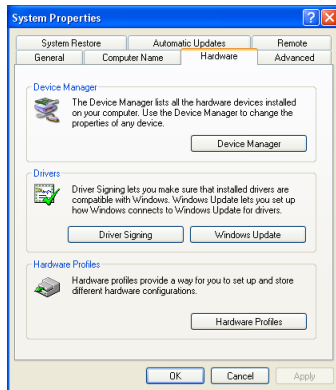


3.1.4. Confirmation of Installation

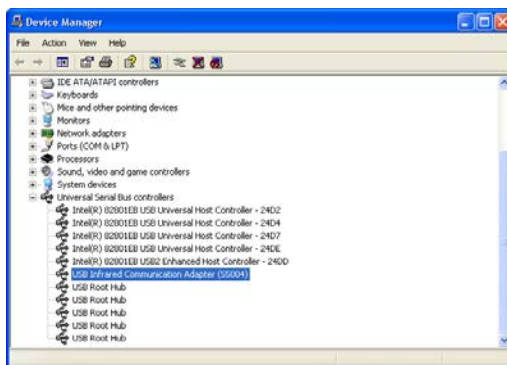
3.1.4.1. USB Driver

Verify that the driver is installed properly.

Select [System] from the [Control panel] for making the [System Properties] display.



Select the [Hardware] tab for opening the [Device Manager].

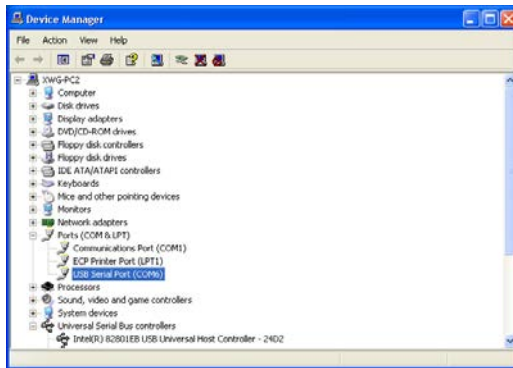


Make sure the [USB Infrared Communication Adapter (S5004)] is displayed within the items [USB (Universal Serial Bus) Controllers].

3.1.4.2. USB virtual COM port driver

Similarly, make sure that "USB Serial Port (COMx)" is displayed within the items "Ports (COM & LPT)" as well. (*The number of COM may vary according to the PC environment you use.)

Communication ports which can be used for Parameter Assistant are COM1 to COM10.



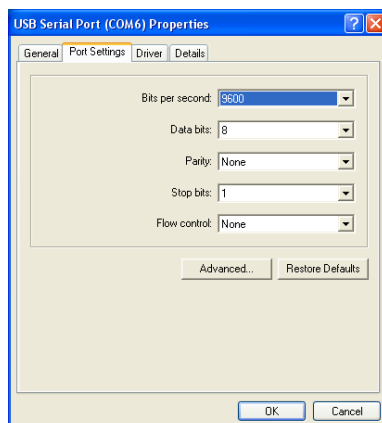
In this screen, the communication port is COM6.

Note

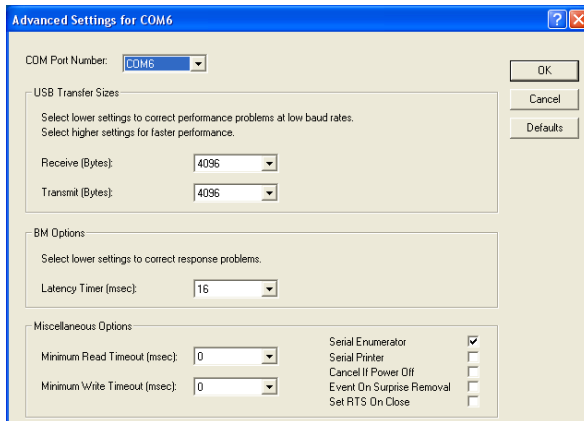
- If S5004 COM port number cannot be specified, click each "Ports (COM & LPT)" line on Device Manager by right button of the mouse to select [Properties] – [General] Tab. You can check USB device name at "Location".

3.1.5. Change of COM number assignment

Display the [3.1.4.2. USB Virtual COM Port Driver] and open [USB Serial Port (COMx)] by double left clicking or right clicking and press "Property."



Select [Port Settings], then open "Advanced ..."



Change the COM number to what you want from "COM Port Number."

Note

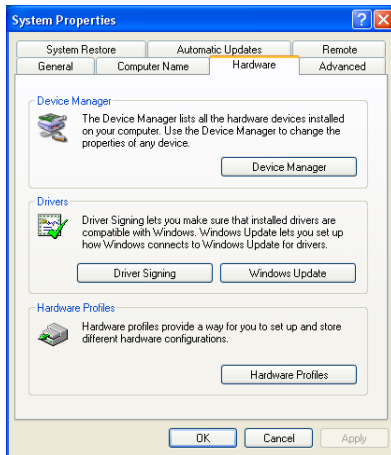
- Please pay attention and do not change to the same number as the currently used COM number to avoid conflict when changing the number.
-

3.2. Method via controller rear terminal (RS-485 or RS-232C)

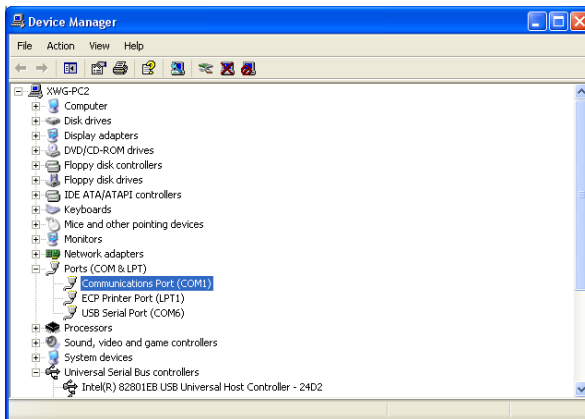
Details about how to wire PC and controllers for RS-485/RS-232C, please refer to "SR23/FP23 Series Digital/Programmable Controller Communication (Interface) Instruction Manuals (Detailed version)."

The following is how to verify the number of PC's communication ports.

Select [System] from the [Control panel] for making the [System Properties] displayed.



Select [Hardware] tab for opening [Device Manager]. Make sure "Communication Port (COMx)" is displayed within the items "Ports (COM & LPT)." (* The number of COM may vary according to the PC you use.)



In this screen, the communication port is COM1. If there are multiple communication ports, please refer to the instruction manual(s) for your PC and/or hardware installed in your system.

3.3. Verification of communication conditions for controller

This deals with the verification of the communication conditions of the controller before communicating with the Parameter Assistant. You will find here an explanation on how to verify the communication method. For more information on parameter setup or the like, please refer to the SR23/FP23 Instruction Manuals (Detailed version) and those for communication (interface).

Note

- There is no need to verify the communication condition when using any controller without the communication option.
- When using the infrared communication interface located at the front panel, the equipment address that is verified in the next operation is effective.

3.3.1. Making communication condition displayed

Displaying basic screen

Press **[DISP]** key several times for displaying the basic screen.

Displaying [DI/OPTION] screen

Press **[GRP]** key several times for making the screen switch to the [DI/OPTION] screen.

Displaying communication condition display screen

Press **[SCRN]** key several times for switching the screen to the communication condition setting screen.

3.3.2. Verification of communication condition

COM PROT	SHIMADEN
ADDR:	1
BPS :	9600
MEM :	EEP

On this screen:

- Make sure the communication protocol (PROT) is SHIMADEN standard protocol (SHIMADEN).
- Record the set value for communication address (ADDR).
- Record the set value for communication speed (BPS).
- Record the set value for communication memory mode (MEM).
- Press **[SCRN]** key for switching to the next screen.

COM DATA	7
PARI:	EVEN
STOP:	1
DELY:	10 ms

On this screen:

- Record the set value for communication data length (DATA).
- Record the set value for communication parity (PARI).
- Record the set value for communication stop bit (STOP).
- Record the set value for delay time (DELY).
- Press **SCRN** key for switching to the next screen.

COM CTRL	STX_ETX_CR
BCC:	ADD

On this screen:

- Record the set value for communication control code (CTRL).
- Record the set value for communication BCC data operating method (BCC).

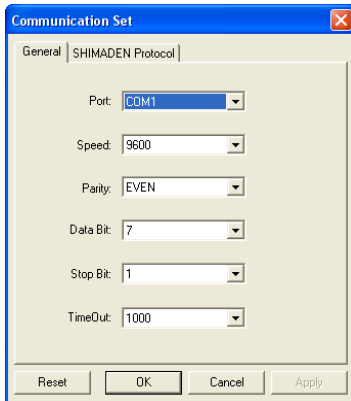
3.4. Setup of communication condition

Conduct setup of communication condition.

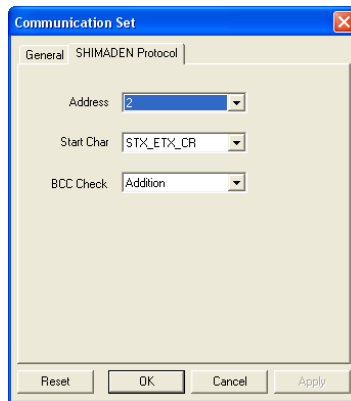
Select [Tool (F)] -> [Communication Set] from the Parameter Assistant main menu.

Items to be set for RS-232C port:

Port (serial port), Speed (communication rate), Parity, Data Bit (data length), Stop Bit, and TimeOut



Items to be set for SHIMADEN protocol: Address, Start Character, BCC Check (BCC operation type).



If you click the [Reset] button, the values for all items except serial port return to their initial values.

For set values when connecting the controller, please refer to Table 3-1. For the verification method of set values of the controller, please refer to subsection "3.3. Verification of communication conditions for your controller."

Communication set value

Item	Infrared Communication	RS-485/RS-232C Communication
Speed	9600	"BPS" of controller
Parity	EVEN	"PARI" of controller
Data bit (Data length)	7	"DATA" of controller
Stop bit	1	"STOP" of controller
Timeout	1000	1000
Address	"Communication address" of controller	"ADDR" of controller
Start character	STX_ETX_CR	"CTRL" of controller
BCC check (BCC operation type)	Addition	"BCC" of controller

4. How to use

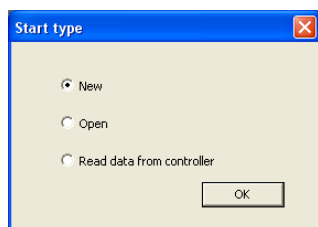
This chapter describes how to use the parameter-setting tool. Operation procedures, notes, dialogue boxes, common operations and the like of this tool are described here.

4.1. Start and Exit

4.1.1. Starting setting tool

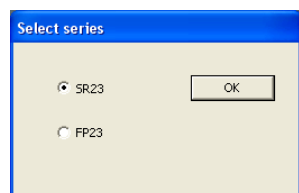
Start Windows.

Click [Parameter Assistant] from Windows desktop or [Program] -> [Shimaden Soft]. Parameter Assistant is activated and a "Start type" dialogue box will be displayed.



- Create a new file

When creating a new setting file, select [New] and click the [OK] button for displaying "Select series" dialogue box (Fig. 4-2). Click the radio button for the target controller, then click the [OK] button.

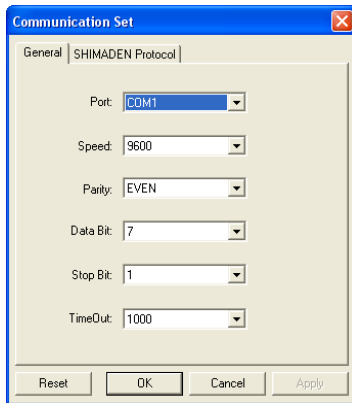


- Open an existing file

For opening an existing setting file, select [Open], and then click the [OK] button for displaying the "Open file" dialogue box. Enter the target folder, select the file and then click the [OK] button.

- Read data from the controller

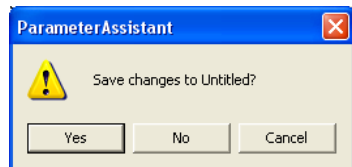
When reading out parameters from the controller, select [Read data from controller] and then click the [OK] button for displaying the "Communication Set" dialogue box (Fig. 4-3). Set the communication condition consistent with that of the controller, then click the [OK] button.



4.1.2. Exit from setting tool

Select [File (F)] -> [Exit (X)] from main menu.

The following message box (Fig. 4-4) will be displayed if the setting data have not been saved.



For exiting after saving parameters in operation, click the [Yes] button. The "Save as" dialogue box will be displayed. Enter file name, then click the [Save] button.

For exiting without saving any parameter, click the [No] button.

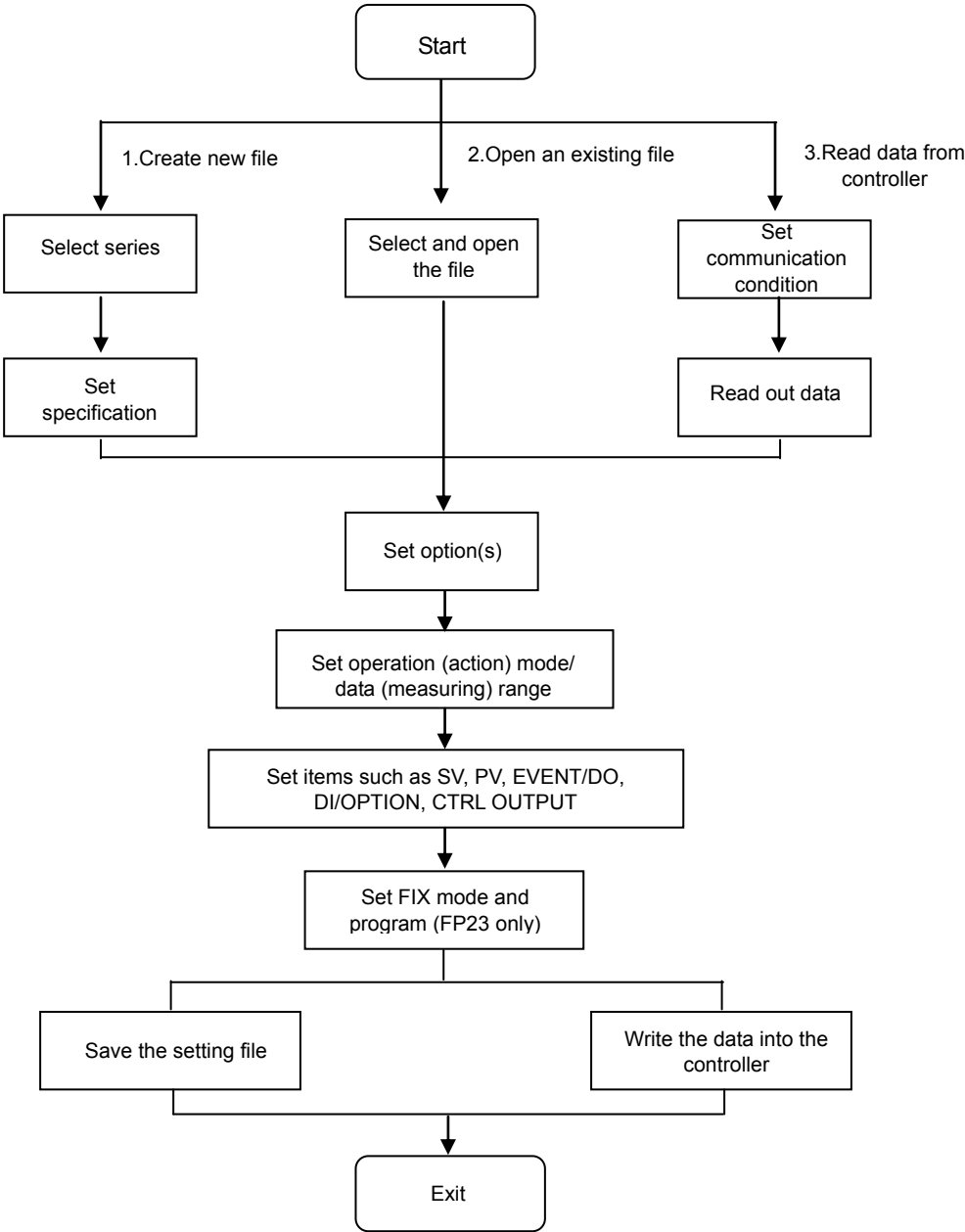
For canceling exit, click the [Cancel] button.

4.2. Work flow

4.2.1. Creating data

There are 3 methods for creating data:

- 1. Create a new file.
- 2. Open an existing parameter file in the PC.
- 3. Read data from the controller connected to the PC.



4.2.2. Data correction

Correct parameters of the controller as necessary.

4.2.3. Transmission and save of corrected data

You may write the corrected data in the controller or save in the PC as necessary.

4.3. Name and function of each part of the screen

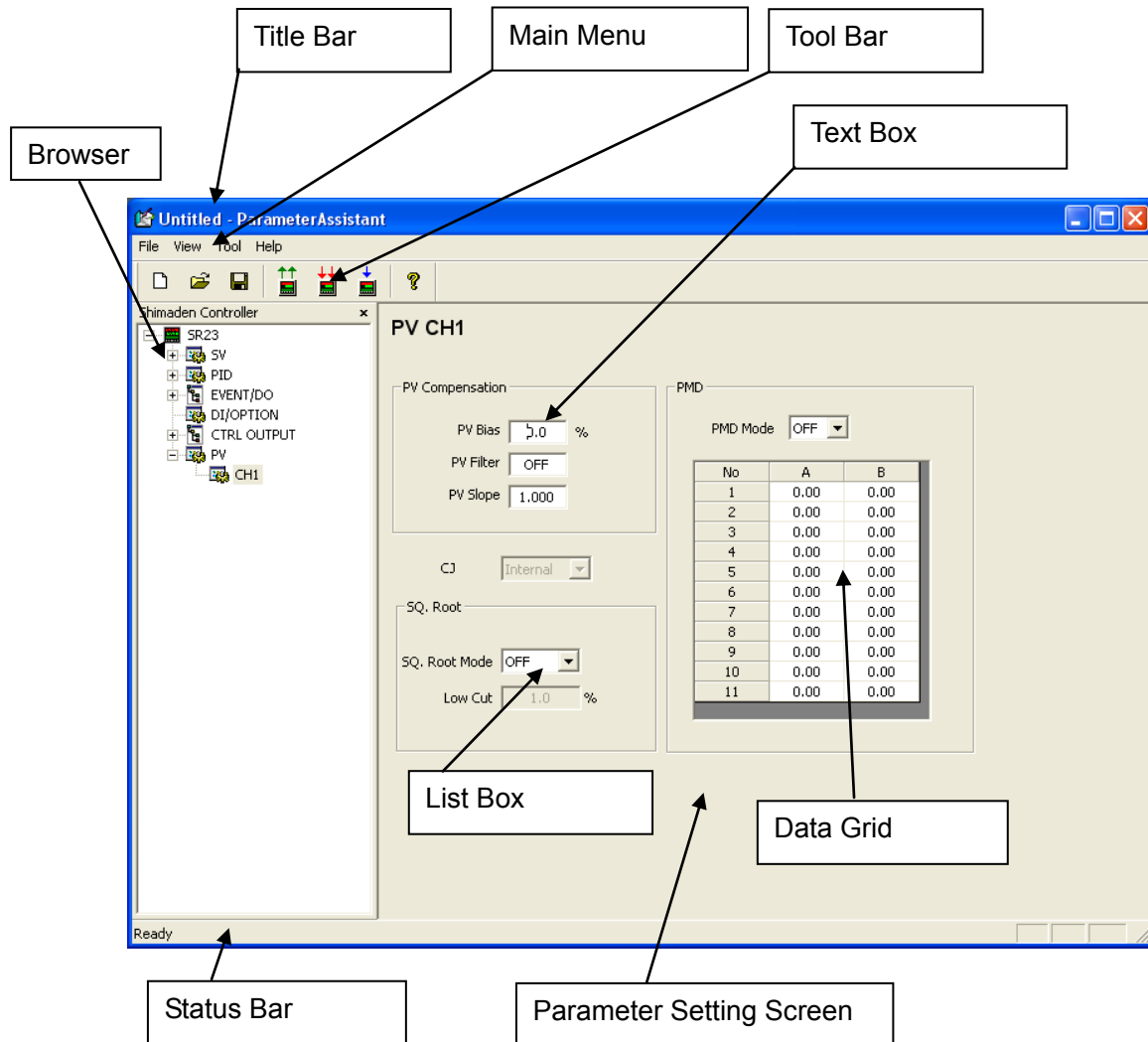


Fig. 4-6 Name and function of each part of the screen

Title Bar

Display the name of the software (Parameter Assistant) and the name of the parameter file currently opened.

Main Menu

Functions of this software should be selected from each item found in the main menu.

Tool Bar

Command buttons are placed in the tool bar for functions selected from those itemized in the main menu based on frequency of use.

Text Box

This is the part of the parameter setting dialogue where you may perform setting. Text boxes for which no setting may be done are made inactive (grayed out).

Please refer to the SR23/FP23 series controller instruction manuals (Detailed version) since setting range or initial value may vary according to the parameter setting value.

Browser

This is used for switching screens. By clicking [+] found at the left side of relevant item, you may display more information as indicated. The contents may be automatically changed according to the relevant controller's specification and option(s).

Status Bar

Indicate software's operating status, etc.

Parameter Setting Screen

This is the screen for displaying the details of item(s) selected on the browser. Parameters are set on this screen.

4.4. Contents of main menu and tool bar

For operating Parameter Assistant:

- (1) Select the item indicated in the menu, and then click.
- (2) A pull-down menu will be displayed. Select the target command from the menu.

4.4.1. Structure of menu

4.4.1.1. [File]

Create

Create a new file.

Open

Open an existing file.

Read data from controller

Read out parameter data from the controller.

Write data to controller

Write parameter data in the controller.

Save

Save parameter data in the PC. Overwrite without displaying the confirmation dialogue box when the file already exists.

Save as

Save the parameter data in the PC with a new name. Ask for confirmation by displaying the dialogue box when the file already exists.

Recent File

Open recent data file(s).

Exit

Exit from Parameter Assistant.

4.4.1.2. [View]**Tool bar**

Switch show or hide display of tool bar.

Status Bar

Switch show or hide display of status bar.

Browser

Switch show or hide display of browser.

Communication data

Display communication data made immediately before.

4.4.1.3. [Tool]**Setup Communication**

Setting of communication condition

4.4.1.4. [Help]**User Manual**

Open the Parameter Assistant Instruction Manual (PDF format)

About Parameter Assistant

Displaying Parameter Assistant's version information, etc.

4.5. Basic operation for setting

Basic procedures for setting parameters are described below.

4.5.1. Selection of parameter

Select group to which the parameter you wish to set belongs, from the browser. Click the parameter item you want to change on the parameter setting screen.

The input cursor will be displayed when the text box is selected.

The background color will change when the drop-down list box is selected.

The dotted rim line will be added to the control when the radio button is selected.

4.5.2. Data entry

Input procedures in the text box are to be directly done on the keyboard. Press the [Enter] key for fixing the value. When an incorrect value is input at the numerical value setting, a message box indicating "Setting value is incorrect" will be displayed. Click the [OK] button, then input the correct value.

Click [▼] on the drop-down list for displaying the drop-down list. Select the item you want from the list.

In the case of the radio button to be used, click directly on the button you want to select.

5. Setup of parameters

In this chapter, the operations may be classified as follows:

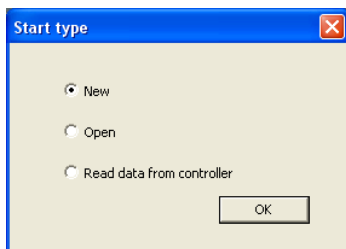
Selection of start type

Selection of series

Setup of Parameters

5.1. Selection of start type

After Parameter Assistant is activated, "Start type" dialogue box (Fig. 5-1) will be displayed.



5.1.1. Create a new file

(1) Click [New] radio button.

(2) Click [OK] button → it changes to the dialog box as shown in the section [5. 2.]

5.1.2. Open an existing file

Changing the parameter file saved in the PC.

(1) Click [Open] radio button

(2) Click [OK] button → it changes to the dialog box as shown in the section [5. 3.]

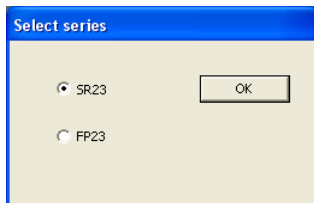
5.1.3. Read data from the controller

(1) Click [Read data from controller] option button.

(2) Click [OK] button → it changes to the dialog box as shown in the section [5. 4.]

5.2. Select series

Select [New] from [Start type] dialogue box for displaying the "Select series" dialogue box (Fig. 5-2) indicated.



Select target controller

- (1) Click the radio button for the target controller.
- (2) Click [OK] button.

5.3. Parameter file operation

This section describes parameter file operation.

Save parameter data in the PC.

Open parameter data file in the PC.

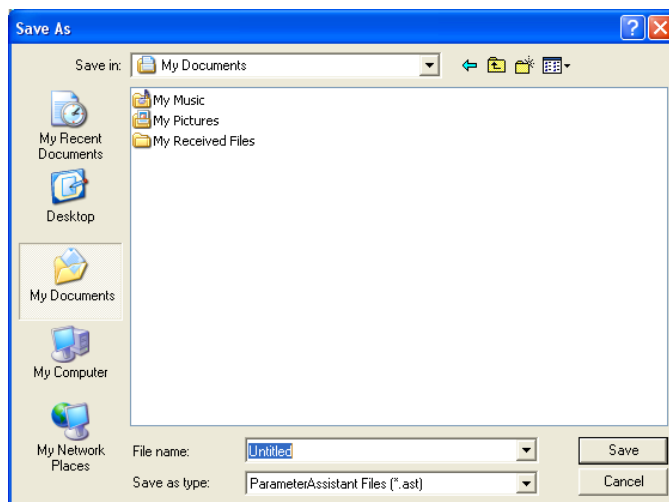
5.3.1. Save parameter data in PC

Save parameter data of the Parameter Assistant in the PC.

Save As

Click [File] -> [Save As] from the tool menu.


"Save As" dialogue box (Fig. 5-3) will be displayed.



Enter file name in the [File name] text box, then click the [Save] button.


The parameter data is saved in the PC.

Overwrite saving to the existing file

Click [File] -> [Save] from menu, or click  on the tool bar.

Overwrite the working file located in the PC.

5.3.2. Open a parameter file in the PC

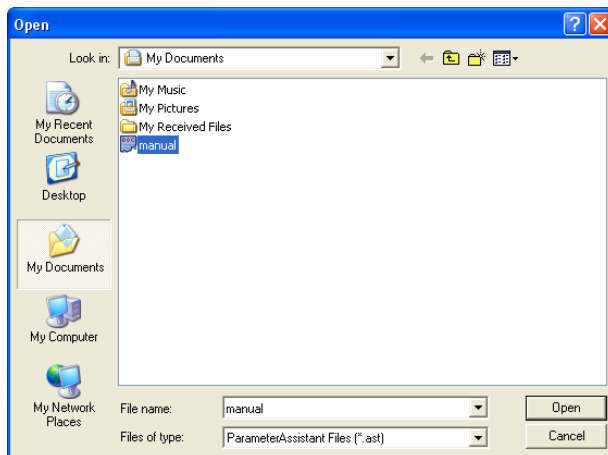
Click [File] -> [Open] from menu, or click  on the tool bar.

"Open" dialog box (Fig. 5-4) will be displayed.

Click [Open] button.

Note


- When an existing parameter file is read, all parameter settings on the Parameter Assistant at that moment will be totally overwritten. If you need to keep parameter setting values, which is under editing/creating on the Parameter Assistant, please save them before opening an existing file.

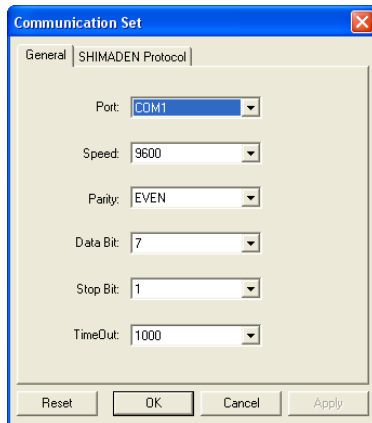


5.4. Read out/writing of parameter

5.4.1. Reading out parameters from the controller

Read out parameters from the controller to Parameter Assistant.

Click [File] -> [Read data from controller] on the tool menu, or click  located on the tool bar, and "Communication Set" dialogue box (Fig. 5-5) will be displayed. Set a communication condition consistent with that of the controller, then click the [OK] button.




When the readout is complete, a success or failure message will be displayed.

Note

- When existing parameter settings are read from the controller, all parameter settings on the Parameter Assistant at that moment will be totally overwritten. If you need to keep parameter setting values, which is under editing/creating on the Parameter Assistant, please save them before reading existing settings.
-

5.4.2. Writing parameters in the controller


Write parameters made on the Parameter Assistant in the controller.

Click [File] -> [Writing data to controller] on the main menu, or click  located on the tool bar, and the "Communication Set" dialogue box (Fig. 5-5) will be displayed. Set a communication condition consistent with that of the controller, then click the [OK] button.

Besides, you may write only changed parameters by clicking the  located on the tool bar.

When writing is completed, a success or failure message will be displayed.

Note

- Please do not write parameters while the controller is conducting control activities. Make sure that the controller is either STBY (SR23) or RST (FP23) state.
 - Please always write all parameters in the controller clicking [File] -> [Writing in the controller] on the main menu or using  located on the tool bar after the final adjustment is completed since some discrepancy may occur among the parameters if you download only changed parameter(s).
-

6. Parameter setting screen

6.1. Parameters common to SR23/FP23

6.1.1. Setting Series Code

Click SR23 (or FP23) located on the [Browser], then click the [Specification] tab for displaying "Series Code Setting" screen (Fig. 6-1).

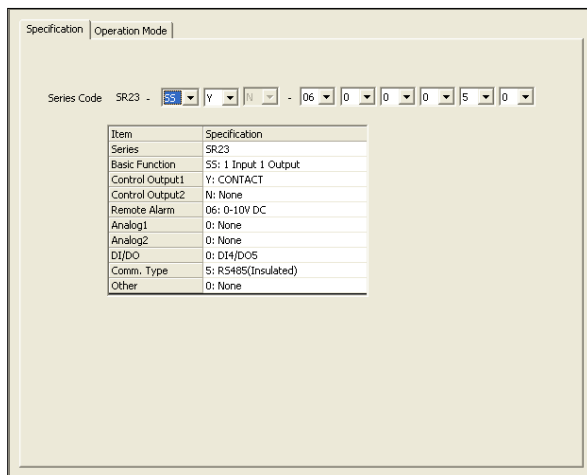


Fig. 6-1 "Series Code Setting" Screen

Select Series Code and Additional Specification Code of the targeted controller. Modify the setting for displaying details of the specification on the table located on the lower part of the screen.

Note

- Please execute the change of Series Code or Additional Specification Code first when making parameter settings since initialization of parameters may occur when executing this procedure.

6.1.2. Operation Mode (Action Mode) setting

Click SR23 (or FP23) located on the [browser], then click [Operation Mode] tab for displaying the "Operation Mode (Action Mode) Setting" screen (Fig. 6-2).

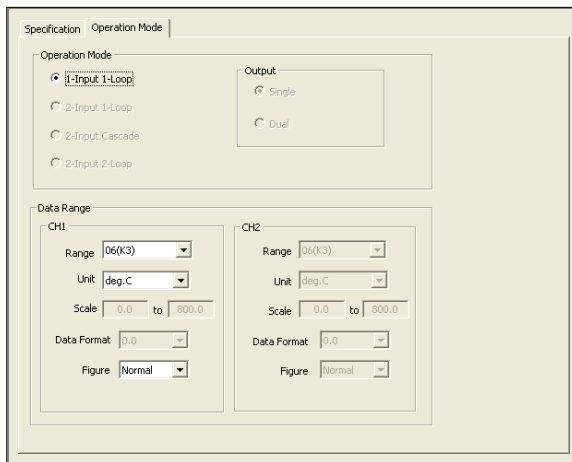


Fig. 6-2 "Operation Mode (Action Mode) Setting" screen

Make setting of parameters related to the operation mode (action mode), output type, and data range (measuring range) on this screen.

You may set the number of input, control loop, output specification, etc., in the operation mode (action mode) setting.

You may set the range (input range), unit, scale, data format (decimal point position), figure (display of decimal point), etc., in the data range (measuring range) setting.

Note

- Please execute the change of Operation Mode or Data Range just after the parameter setting steps described in "6.1.1" when making parameter settings, since initialization of parameters may occur when executing this procedure.
-

6.1.3. SV Limit setting

Click SV located in the [Browser] for displaying the "SV COMMON Screen" (Fig. 6-3).

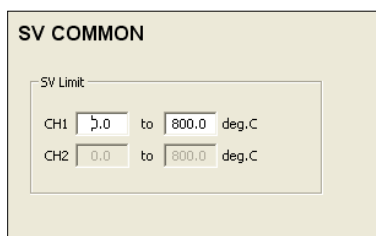


Fig. 6-3 "SV Limit Setting" screen

Set higher and lower SV limits on this screen.

6.1.4. Setting of Zone PID and Auto Tuning

Click PID located in the [Browser] for displaying the "Setting of Zone PID and Auto Tuning"

screen (Fig. 6-4).

Fig. 6-4 "Zone PID and Auto Tuning Setting" screen

Zone PID related items: Operation mode (action mode), HYS value and zone range of Zone PID

Auto Tuning related items: Tuning mode, hunting width (hunting range), AT point

6.1.5. PID parameter setting

Click [PID] -> [PID?] (? is any from 1 to 10) from the [Browser] for displaying "PID Setting" screen (Fig. 6-5).

Fig. 6-5 "PID Setting" screen

Set PID control-related parameters.

Setting items: P (proportional band), I (integral time), D (derivative time), DF (hysteresis), MR (manual reset), DB (dead band) SF (target value function), Output Limit

6.1.6. EVENT/DO parameter setting

Click an item (EVENT or DO) belonging to the [EVENT/DO] from [Browser] for displaying "EVENT/DO setting" screen (Fig. 6-6).

Fig. 6-6 "EVENT/DO Setting" screen

Set event output.

- Common items: MD (EVENT/DO Action), channel, SP (action point), ACT (output characteristics), IH (standby action), DF (hysteresis), DLY (delay time)
- Logic operation related items: Log MD (Logic Operation Mode), SRC1, SRC2, Gate1, Gate2
- Timer/counter related items: SRC, Log MD (mode), time (timer), count (counter)

6.1.7. DI/OPTION parameter setting

Click [DI/OPTION] from [Browser] for displaying "DI/OPTION setting" (Fig. 6-7).

Fig. 6-7 "DI/OPTION Setting" screen

DI related setting items: Allocation of DI type and channel

Analog output related setting items: MD (output types), lower limit, upper (higher) limit

Heater alarm related setting items: HBA (break alarm current set value), HLA (loop alarm current set value), HBM (alarm mode), HB (alarm detection)

6.1.8. CTRL OUTPUT parameter setting

Click [CTRL OUTPUT] -> [OUT?] (? is 1 or 2. Depend upon the specification, OUT2 may not be displayed.) from the [Browser] for displaying "CTRL OUTPUT Setting" screen (Fig. 6-8).

Fig. 6-8 "CTRL OUTPUT Setting" screen

Set control output-related parameters.

Setting items: ACT (action characteristics), RST (output at standby), ERR (output at error), CYC (proportional cycle time), Rate (rate-of-change) Limiter

6.1.9. 2-input computation setting

Click [Browser] -> [PV] for displaying [PV 2 Input Computation] screen (Fig. 6-9).

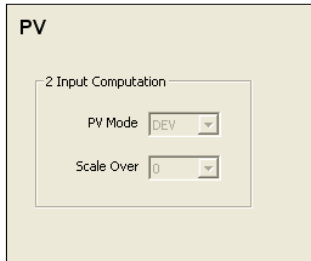


Fig. 6-9 "PV 2-Input Computation Setting" screen

Set 2-input computation related parameters.

Setting items: PV computation mode, processing when scale over occurs.

6.1.10. PV related parameter setting

Click [PV] -> [CH?] (? is 1 or 2. Depend upon the specification, OUT2 may not be displayed) from the [Browser] for displaying "PV Setting" screen (Fig. 6-10).

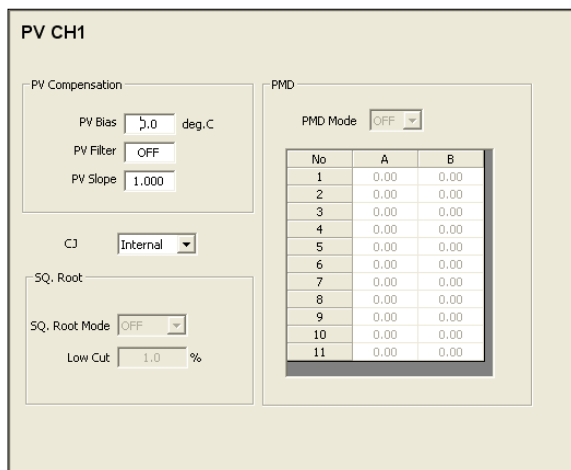


Fig. 6-10 "PV Setting" screen

Set PV input processing-related parameters.

PV correction related items: PV bias, PV filter, PV slope

Set CJ (thermocouple's cold junction compensation) method.

Square root extraction related items: ON/OFF of SQ. root mode (square root extraction function), low cut

PMD (input points of ten-segment linearizer) items:

ON/OFF of PMD, PV input value (A), PV display value (B)

6.2. Parameters specially dedicated to SR23

6.2.1. SV related parameter setting

Click [SV] -> [SR23] from [Browser] for displaying "SV Setting Screen" (Fig. 6-11).

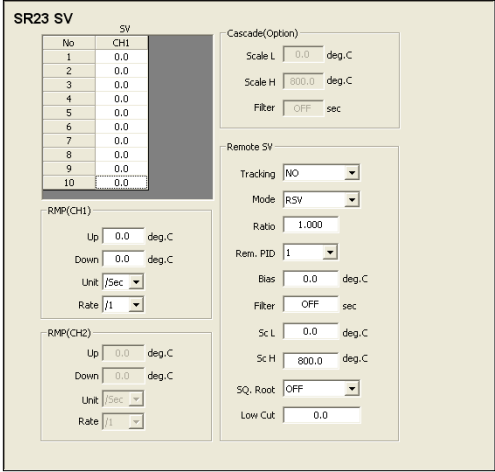


Fig. 6-11 "SV Parameter Setting" screen

Set target set value (CH1/CH2), ramp control parameter (CH1/CH2), cascade control parameter, remote SV related parameters for SR23 on this screen.

You may set up to 10 target set values for each channel.

Ramp control related items: Up (upper) and Down (lower) limits, unit and rate (ratio).

Cascade control related items: Scale H and Scale L (higher and lower scale limits), and filter (filter time)

Remote SV related items: Tracking, Mode, Rem. PID, Ratio, Bias, Filter, Sc H and Sc L (higher and lower scale limits), SQ. Root (square root extraction), Low Cut

6.3. Parameters specially dedicated to FP23

6.3.1. FIX MODE parameter setting

Click [FIX MODE] -> [CH?] (? is 1 or 2. Depend upon the specification, OUT2 may not be displayed) from the [Browser] for making "FIX MODE Setting" screen (Fig. 6-12) displayed.

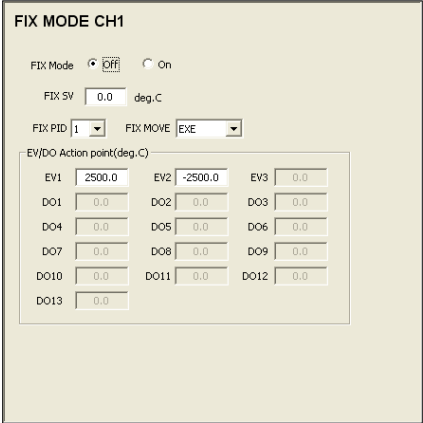


Fig. 6-12 "FIX MODE Setting" screen

Set FIX mode (Fixed value control)-related parameters.

Setting items: ON/OFF of FIX mode, FIX SV (set value), FIX PID (PID number), FIX MOVE (mode shift method), EVENT/DO Action point

6.3.2. PROGRAM setting

Set program functions of FP23.

6.3.2.1. Displaying step count for each pattern

Click [PROGRAM] from [Browser] for displaying "Step count overview" screen (Fig. 6-13).

Pattern No.	CH1	CH2
1	20	20
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Fig. 6-13 "Step count overview" screen
Display step count dedicated to each pattern.

6.3.2.2. Setting of common parameters for all patterns

Click [PROGRAM] -> [CH?] (? is 1 or 2. Depend upon the specification, OUT2 may not be displayed) from [Browser] for displaying "Initial Program Setting" screen (Fig. 6-14).

The screenshot shows the 'PROGRAM CH1' screen with the following settings:

- PTN: 10
- Time Unit: H/M
- PRG. Wait[HH:MM]: 00:00
- SO. Mode: HOLD
- POWER ON: RESET
- ADV Mode: Step
- ADV Time: 00:00
- Start PTN: 1

The PTN Link section shows a 'Reps' field set to 0 and a table with the following data:

No.	Pattern
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0

Fig. 6-14 "Initial Program Setting" screen

Set common parameters for all patterns belonging to the currently selected channel.

Setting items: PTN (number of pattern(s)), time unit, PRG. Wait (delay time), SO. mode (input abnormal mode), POWER ON (power failure compensation), ADV (advanced) mode, ADV (advance) time, Start PTN (start pattern), Reps (number of pattern links executed), pattern link number

6.3.2.3. Pattern related setting

Click [PROGRAM] -> [CH?] (? is 1 or 2. Depend upon the specification, OUT2 may not be displayed) -> PAT* (* is any from 1 to 20) from [Browser], then click [PAT-Common] label for displaying "Pattern-Related Setting" screen (Fig. 6-15).

Fig. 6-15 "Pattern-Related Setting" screen

Setting items

- Step count (number of steps), start step, PTN reps (number of patterns executed)
- Step loop-related: Start step, end step, reps (number of executions)
- ON/OFF of PV start function
- Guarantee soak-related: Guarantee soak zone, guarantee soak time
- EV-DO set point (action point)

6.3.2.4. Step information setting

Click [PROGRAM] -> [CH?] (? is 1 or 2. Depend upon the specification, OUT2 may not be displayed) -> PAT* (* is any from 1 to 20) from [Browser], then click [PAT-Step] label for displaying [Step Setting] screen (Fig. 6-16).

Set step SV, step time, step PID number. Setting of start SV is also to be made on this screen.

(1) Displaying step data

Drag the overview frame or click the scroll bar to see another step data.

(2) Setting of step SV (Start SV included)

For setting Step SV, please directly input SV value in the grid or drag/drop SV setting frame with the mouse.

By clicking the SV setting frame, the frame is made as selected status (green), then you may change the SV value using the upper (higher) and lower scroll keys. Besides, by pressing Shift key at the same time as the upper (higher)/lower scroll key, the value change rate is made at 1/10 of the normal rate, and becomes 10 times greater by pressing Ctrl key at the same time.

(3) Step time setting

For setting the step time, please directly input step data on the position corresponding to the grid where the step data is to be displayed.

(4) Setting of step PID number

For setting the Step PID number, please select the position corresponding to the grid where the step data is to be displayed, then select the number from the drop-down list.

Besides, the Step ramp rate value is also updated when the step SV value and step time are revised.

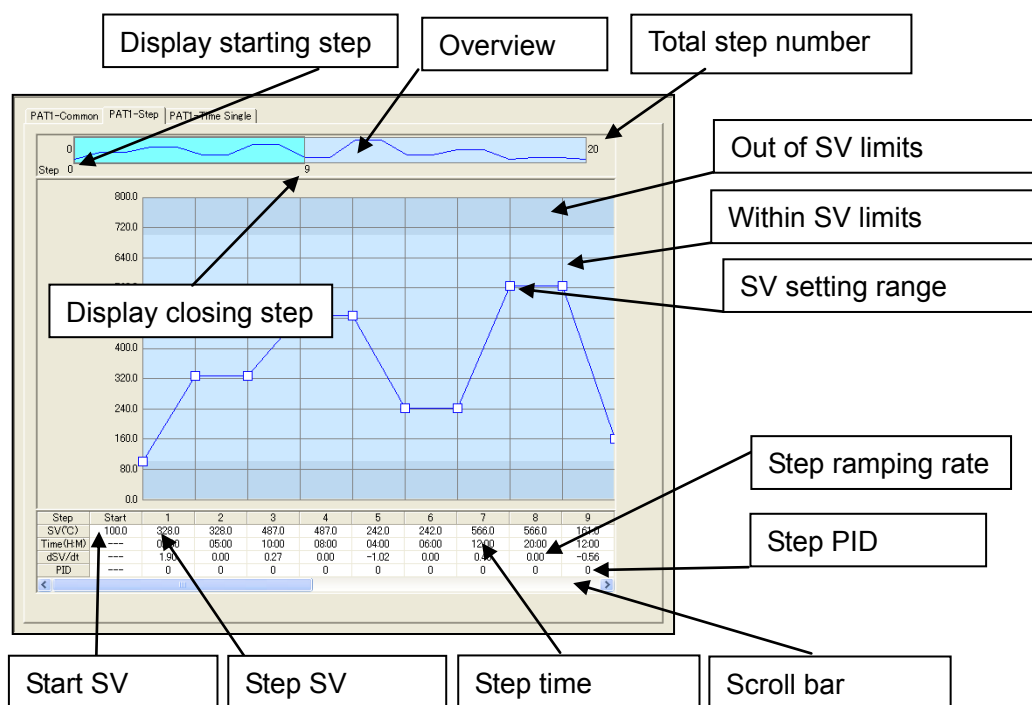


Fig. 6-16 "Step Setting" screen

6.3.2.5. Time signal setting

Click [PROGRAM] -> [CH?] (? is 1 or 2. Depend upon the specification, OUT2 may not be displayed) -> PAT* (* is any from 1 to 20) from [Browser], then click [PAT-Time Signal] label for displaying "Time Signal Setting" screen (Fig. 6-17).

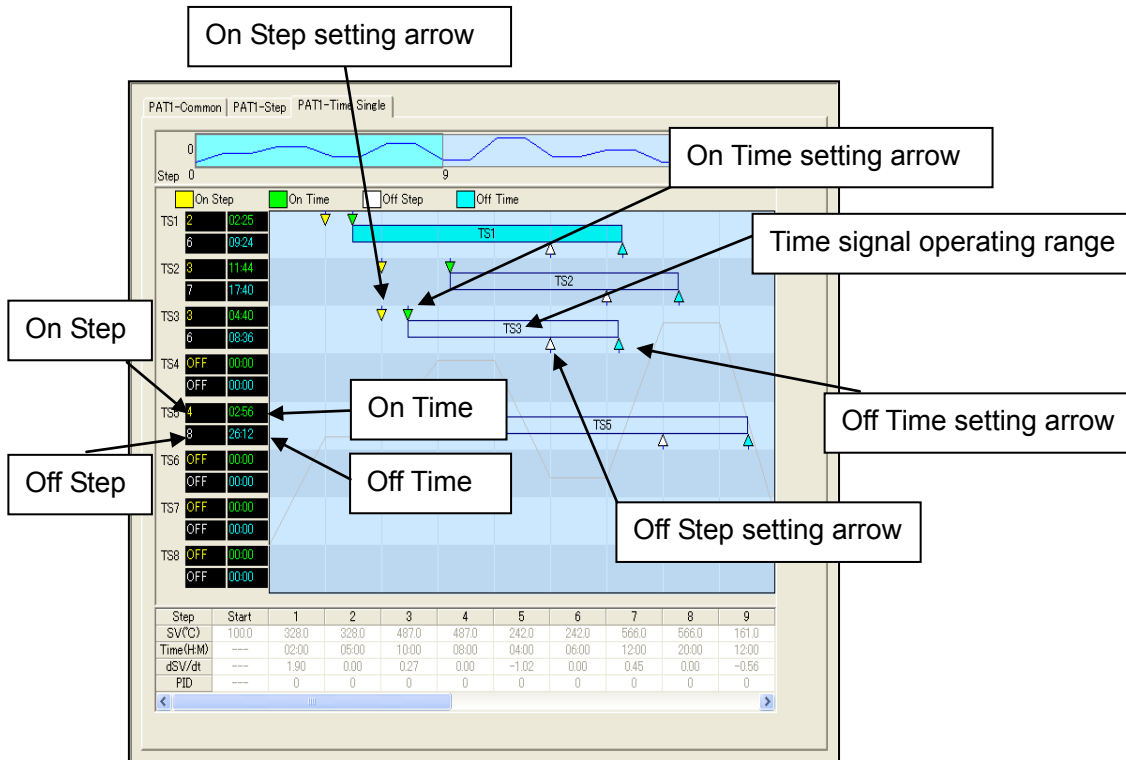


Fig. 6-7 "Time Signal Setting" screen

Two methods are available for setting time signal.

(1) Input directly in the text box located at the left side of the screen.

Input On Step, On Time, Off Step and Off Time in the corresponding text boxes with the blacked background.

(2) Set using mouse and keyboard.

Click the right hand part of the screen (highlighted with light blue) while pressing the Shift key and specify On Step and On Time at the same time.

Click the right hand part of the screen (highlighted with light blue) while pressing the Ctrl key and specify Off Step and Off Time at the same time.

Adjust each value by dragging and dropping the arrow of the corresponding data to be set by using the mouse. The values may be adjusted using the left/right scroll keys when the arrow is selected. You may adjust the value change rate by using the Shift and Ctrl keys together.

Besides, when the time signal is shown within the display range of the screen, click the line where the time signal is located using the mouse for making the screen automatically scroll to the position where the time signal may be seen.

6.4. Parameters for "servo" specification

These are special parameters for servo specification controllers.

6.4.1. Servo parameters setting

Click [CTRL OUTPUT] from [Browser] for displaying the "Servo parameter setting" screen (Fig. 6-18).

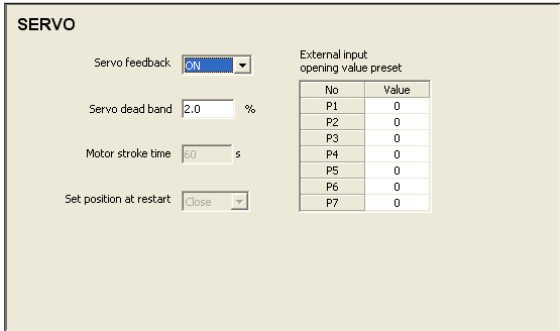


Fig. 6-18 "Servo Parameter Setting" screen

Set parameters related to the Servo.

Setting items: Servo feedback, Servo dead band, Motor stroke time, Set position at restart (starting position setting), External input opening value preset

6.4.2. CTRL OUTPUT parameter setting

Click [CTRL OUTPUT] -> [OUT1] from the [Browser] for displaying the "CTRL OUTPUT Setting" screen (Fig. 6-19).

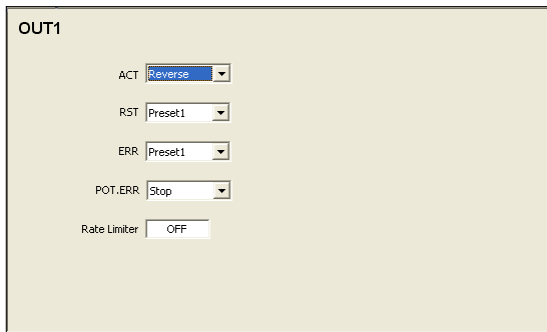


Fig. 6-19 "CTRL OUTPUT Setting" screen

Set control output-related parameters for servo specification.

Setting items: ACT (operating characteristics), RST (output at standby), ERR (output at alarm), POT.ERR (output at POT.ERR), Rate (rate-of-change) Limiter

7. Trouble Shooting

This chapter describes how to solve troubles occurring when using the Parameter Assistant.

7.1. Display

The following operating environment is recommended: CRT: 800 x 600 pixels or more, color display: 65536 or higher with small font used. Please make sure the above-mentioned condition is met.

7.2. Communication issues

Please check for the following:

7.2.1. Infrared communication

- USB cable is properly connected.
- USB driver for the adapter is installed (From device manager).
- S5004 is correctly attached to the controller.
- COM port number is correct (From device manager).
- Communication parameter settings are correct, and conform between the controller and the PC.
- The controller's infrared communication is enabled. (IR COM : ON)

7.2.2. Terminal communication (RS-485/RS-232C)

- The line is correctly wired.
- Communication parameter settings are correct, and conform between the controller and the PC.
- Communication protocol for the main unit is set to "SHIMADEN Standard Protocol."
- COM port number is correct

Note

-
- Keep any heat source (such as lamp) away from S5004. This may cause a communication malfunction.
-

The contents of this instruction manual are subject to change without prior notice for improvement.

Temperature and Humidity Control Specialists

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