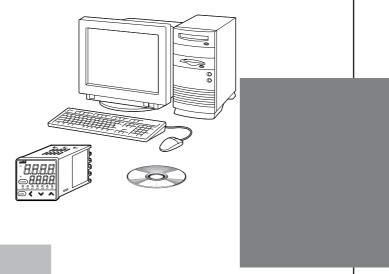# SLP-C35
Smart Loader Package
for the
SDC15/25/26/35/36
Single Loop Controller

User's Manual

Thank you for purchasing the Smart Loader Package.
This manual contains information for ensuring correct use of the SLP-C35. It also provides necessary information for installation, maintenance, and troubleshooting.

This manual should be read by those who design and maintain devices that use the SDC15/25/26/35/36 and SLP-C35.

Be sure to keep this manual nearby for handy reference.

Yamatake Corporation

RESTRICTIONS ON USE

This product has been designed, developed and manufactured for general-purpose application in machinery and equipment.
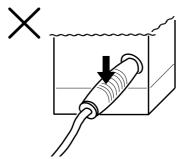
Accordingly, when used in applications outlined below, special care should be taken to implement a fail-safe and/or redundant design concept as well as a periodic maintenance program.

- Safety devices for plant worker protection
- Start/stop control devices for transportation and material handling machines
- Aeronautical/aerospace machines
- Control devices for nuclear reactors

Never use this product in applications where human safety may be put at risk.

IMPORTANT

Do not apply too much force when connecting the loader plug. Doing so might damage the instrument.

⚠ Handling Precautions

Application of excessive force to the loader plug might cause communications failure. If this happens, reconnect the loader plug correctly.

NOTICE

Be sure that the user receives this manual before the product is used.

Copying or duplicating this user's manual in part or in whole is forbidden. The information and specifications in this manual are subject to change without notice.

Considerable effort has been made to ensure that this manual is free from inaccuracies and omissions. If you should find an error or omission, please contact Yamatake Corporation.

In no event is Yamatake Corporation liable to anyone for any indirect, special or consequential damages as a result of using this product.

Unpacking

Check the following items when removing the SLP-C35 from its package:

1. Check the model No. to make sure that you have received the product that you ordered.
2. Check the SLP-C35 for any apparent physical damage.
3. Check the contents of the package against the packing list to make sure that all accessories are included in the package.

After unpacking, handle the SLP-C35 and its accessories taking care to prevent damage or loss of parts.

If an inconsistency is found or the package contents are not in order, contact your dealer immediately.

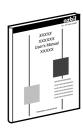| Name	Model No.	Qty	Remarks
SLP-C35 System disk	SLP-C35J50	1	CD-ROM
Dedicated cable	-	1	(1 set)
User's Manual	CP-UM-5290E	1	This manual.

The Role of This Manual

A total of eight different manuals are available for the SDC15/25/26/35/36. Read them as necessary for your specific requirements. If a manual you require is not available, contact Yamatake Corporation or its dealer.

SDC15 Single Loop Controller User's Manual: "Installation"
                                                        Manual No. CP-UM-5287E

This manual is supplied with the product. Personnel in charge of design and/or manufacture of a system using this unit should thoroughly read this manual. This manual describes safety precautions, installation, wiring, parameters, and primary specifications. For further information about operation, refer to other manuals, "Basic Operation" and/or "Installation & Configurations."

SDC15 Single Loop Controller User's Manual: "Basic Operation"
                                                        Manual No. CP-SP-1147E

This manual is optional (sold separately). The manual describes the functions you can set up only with "Simple configuration." Personnel in charge of design, manufacture, operation, and/or maintenance of a system using this unit should thoroughly read this manual. This manual describes installation, wiring, major functions and settings, operating procedures, troubleshooting, and detailed specifications.

SDC15 Single Loop Controller User's Manual: "Installation & Configurations"   **Manual No. CP-SP-1148E**

This manual is optional (sold separately). The manual describes the hardware and all functions of this unit. Personnel in charge of design, manufacture, operation, and/or maintenance of a system using this unit and those in charge of communications software for a system using the communications functions of this unit should thoroughly read this manual. This manual also describes installation, wiring, connections for communications, all functions and settings of this unit, operating procedures, communications with host station such as personal computer, communications addresses, troubleshooting, and detailed specifications.

SLP-C35 Smart Loader Package for the SDC15/25/26/35/36
Single Loop Controller: User's Manual   Manual No. CP-UM-5290E

This manual.
This manual is supplied with the SLP-C35 Smart Loader Package. The manual describes the software used to make various settings for the SDC15/25/26/35/36 using a personal computer. Personnel in charge of design or configuration of a system using the SDC15/25/26/35/36 should thoroughly read this manual. It describes installation of the software on a personal computer, operation of the personal computer, various functions, and setup procedures.

SDC25/26 Single Loop Controller User's Manual: "Installation"
                                            Manual No. CP-UM-5288E

This manual is supplied with the product. Personnel in charge of design and/or manufacture of a system using this unit should thoroughly read this manual. This manual describes safety precautions, installation, wiring, parameters, and primary specifications. For further information about operation, refer to another manual, "Installation & Configurations."

SDC25/26 Single Loop Controller User's Manual: "Installation & Configurations"   **Manual No. CP-SP-1149E**

This manual is optional (sold separately). The manual describes the hardware and all functions of this unit. Personnel in charge of design, manufacture, operation, and/or maintenance of a system using this unit and those in charge of communications software for a system using the communications functions of this unit should thoroughly read this manual. This manual also describes installation, wiring, connections for communications, all functions and settings of this unit, operating procedures, communications with host station such as personal computer, communications addresses, troubleshooting, and detailed specifications.

SDC35/36 Single Loop Controller User's Manual: "Installation"
                                            Manual No.CP-UM-5289E

This manual is supplied with the product. Personnel in charge of design and/or manufacture of a system using this unit should thoroughly read this manual. This manual describes safety precautions, installation, wiring, parameters, and primary specifications. For further information about operation, refer to another manual, "Installation & Configurations."

SDC35/36 Single Loop Controller User's Manual: "Installation & Configurations"   **Manual No.CP-SP-1150E**

This manual is optional (sold separately). The manual describes the hardware and all functions of this unit. Personnel in charge of design, manufacture, operation, and/or maintenance of a system using this unit and those in charge of communications software for a system using the communications functions of this unit should thoroughly read this manual. This manual also describes installation, wiring, connections for communications, all functions and settings of this unit, operating procedures, communications with host station such as personal computer, communications addresses, troubleshooting, and detailed specifications.

Organization of the Manual

This manual is organized as follows:

Chapter 1. INTRODUCTION

Be sure to read this chapter before you start using the Smart Loader Package. This chapter describes the required operating environment for the personal computer, tells how to install the package, and briefly introduces its features.

Chapter 2. INSTALLATION, STARTING AND QUITTING

This chapter describes how to install, start and quit the program.

Chapter 3. SETUP

This chapter describes how to set up the data.

Chapter 4. MONITORING

This chapter describes how to change the settings, as well as the screens monitoring the operation status.

Chapter 5. TROUBLESHOOTING

This chapter describes error messages that are displayed when a problem occurs, and tells how to remedy the problem.

Contents

Conventions Used in This Manual

The following conventions are used in this manual:

! Handling Precautions :

Handling Precautions indicate items that the user should pay attention to when handling the SLP-C35PRO.

📖 Note :

Notes indicate useful information that the user might benefit by knowing.

☞ :

This indicates the item or page that the user is requested to refer to.

(1), (2), (3) :

The numbers with the parenthesis indicate steps in a sequence or indicate corresponding parts in an explanation.

[OK] button :

Indicates a selection button in screens displayed on the personal computer.

[Option] :

Indicates messages and menus displayed on the personal computer.

\>\> :

Indicates the result of an operation, details displayed on the personal computer or devices, or the state of a device after an operation.

[Ctrl] key, [A] key :

Indicates keys on the keyboard.

[Ctrl]+[A] key :

Indicates the operation of pressing the [A] key with the [Ctrl] key on the keyboard held down.

Chapter 1. INTRODUCTION

1 - 1   Overview

The SLP-C35 is a software engineering tool for the SDC15/25/26/35/36.

📖 Note

- Install the SLP-C35 on the PC hard disk following the procedure in ☞ 2-1 Installing the Loader (page 2-1).
  Keep the installation CD as a backup.

⚠ Handling Precautions

- The CD does not contain an operating system (OS), and cannot be used without one.

■ Program functions

The Smart Loader Package has the following functions:
- Setup
- Monitoring
- Adjustment

● Setup function

This function is for setting the required controller parameters on the personal computer and writing (transferring) them to the controller. For details, refer to:
☞ Chapter 3. SETUP.

● Monitoring function

After the setup parameters have been written to the controller, it is possible to change and tune control constants while the controller is running, to switch modes (RUN/READY, AUTO/MANUAL, etc.), and to check RUN status and alarm occurrence.

The run state can also be checked on the Trend screen, and sampled data can be output in CSV format so that it can be handled in third-party spreadsheet software such as Microsoft Excel. For details, refer to:
☞ Chapter 4. MONITORING.

⚠ Handling Precautions

- The monitor target is limited to only one unit when monitoring is done via the loader jack on the front panel.

● Adjustment function

This function is used when the user adjusts controller input.
For details on the adjustment function, refer to:
☞ SDC15 Single Loop Controller User's Manual: "Installation & Configurations" (CP-SP-1148E)

SDC25/26 Single Loop Controller User's Manual: "Installation & Configurations" (CP-SP-1149E)

SDC35/36 Single Loop Controller User's Manual: "Installation & Configurations" (CP-SP-1150E)

⚠ Handling Precautions

- When the adjustment function is used, previous adjustment values stored on the controller are discarded. (When this function is used for the first time, the controller's default adjustment values are discarded.) Beware of this when using this function.

1 - 2   System Requirements

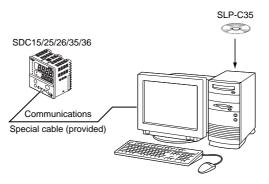The following operating environment is required for using the SLP-C35:

■ Hardware

Item		Description
Personal Computer	Processor	PC/AT compatibles with a Pentium chip or higher
	Memory	32MB or more
	Operating system	Windows98/Me/2000 Professional/XP/Vista
	USB Port	1 port or more
Peripheral Devices	Display	800 X 600 dot or more, 16 bit color or more
	Hard disk drive	Hard disk with at least 40MB of free space
	CD-ROM drive	1 drive or more
	Pointing device	Windows-compatible mouse or equivalent device

⚠ Handling Precautions

- Before starting the Smart Loader, quit all other applications.
  The program may not function if you start it while another application is running. Set the power save setting, infrared communications and screen saver to OFF.

- Make sure that the [Decimal symbol] has been set to " . " for [Control Panel] → [Regional Settings] → [Number]. If it has been set to some other character, the loader program cannot function correctly.
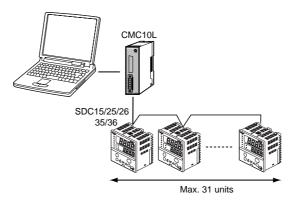
■ Hardware configuration

● General configuration

SLP-C35

SDC15/25/26/35/36

Communications

Special cable (provided)
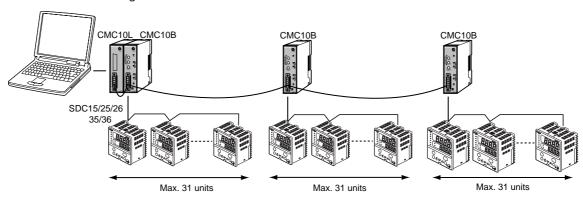
● Configuration with CMC10B/L
• When connecting 31 units or less

CMC10L

SDC15/25/26
35/36

Max. 31 units

• When connecting 32 units or more

CMC10L CMC10B   CMC10B   CMC10B

SDC15/25/26
35/36

Max. 31 units   Max. 31 units   Max. 31 units

📖 **Note**
• The CMC10B allows up to 31 units to be connected to a host device.

📖 **Note**

• Personal computer used for confirmation of operating environment

Manufacturer	Model No.
Dell	OptiPlex GX110
IBM	Think Pad A31

Chapter 2. INSTALLATION, STARTING AND QUITTING

2 - 1   Installing the Loader

This section describes how to install the SLP-C35 on a personal computer.

⚠ Handling Precautions

- If you start the installer while another application is running, the installer may malfunction. Shut down other applications and then start the installer. The SLP-C35 sometimes cannot be started due to a particular combination of other applications and drivers.

  For details on Windows and personal computer settings, refer to the user's manuals provided with Windows and with the personal computer.

- Windows 2000 Professional/XP Professional:
  Only users belonging to the "Administrators" group can install/uninstall this software.
  Windows XP Home Edition:
  Only users belonging to the computer "Administrators" group can install/uninstall this software.

● Running the installer

(1) Put the CD in the CD-ROM drive of your personal computer.

  >> The installation program starts automatically and the following screen appears:
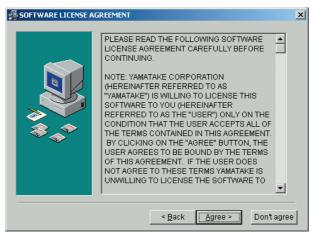
If an old version of the SLP-C35 has been installed, the screen shown below appears. Click the [OK] button to delete the old SLP-C35 version.
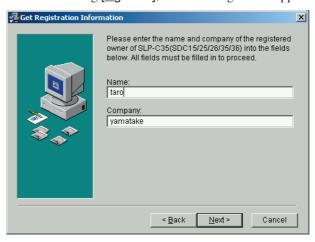
(2) Click the [Next >] button.

>> The following screen appears:

(3) If you agree to the software license agreement and wish to install the program, click [Agree >]. To abort the installation, click [Don't agree].

>> After clicking [Agree >], the following screen appears:
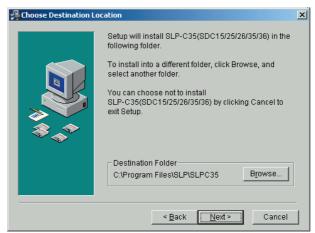
(4) Enter the user name and company name of a registered user, and then click the [Next >] button.

>> The following screen appears:
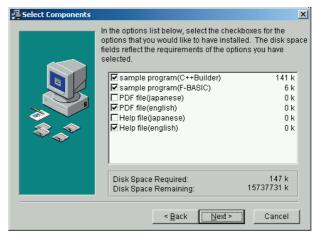
(5) Click the [Next >] button
>> The following screen appears:

📖 **Note**
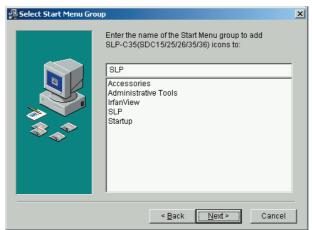
• To change the installation destination directory, click [Browse...].

(6) Click the [Next >] button.
>> The following screen appears:

📖 **Note**
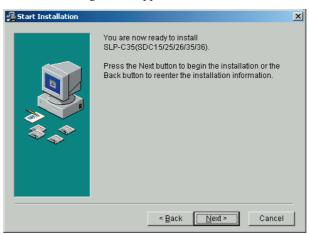
• Check the necessary files.
To display a PDF file, it is necessary to install Adobe Reader.
For details, refer to:
☞ Note on page 2-5.

(7) Check (put a check mark : ☑ before) the software components you wish to install and click the [Next >] button.

>> The following screen appears:
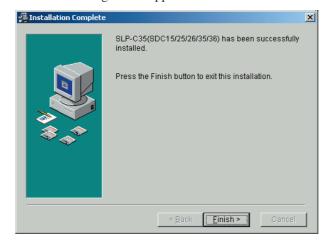
📖 **Note**

• To change the start menu folder, enter the new folder name.

(8) Click the [Next >] button.

>> The following screen appears:

(9) Click the [Next >] button.

>> The following screen appears:

(10) Click the [Finish >] button.

>>When the installation is completed successfully, the screen will return to the Windows screen.

📖 **Note**

- Installation of Adobe Reader
  If Adobe Reader is not installed on your personal computer, install it using either of the following procedures:
  - Download Adobe Reader from the Adobe Systems home page.
  - Install [adberdr60_enu_full.exe] from the CD-ROM.

2 - 2   Device Driver Installation for USB Loader Cable

A device driver must be installed before using the USB loader cable. Follow the procedure below to install the device driver:

■ Installing the device driver

! Handling Precautions

- Be sure to follow the procedure below when installing the device driver. The USB cable may not be recognized if the procedure is not followed. If the cable is not recognized, uninstall the driver and then install it again.

- Administrator privileges on the computer are required for driver installation. Installation should be done by the administrator or by a user who belongs to the administrator group.
  The USB loader cable is supported on Windows 98/Me/2000/XP/Vista (32 bit type). It is not supported on 64-bit Windows XP, or on Windows 95, Windows NT, MS-DOS or PC-DOS.

- If there are multiple USB ports, connect the USB loader cable to the same port every time. If it is connected to a different port, there is a chance that driver installation may be required again.

1. Put the SLP CD-ROM into the CD-ROM drive of the personal computer.

When the installation program starts, cancel it.

2. Insert the USB loader cable into the USB port.

>>When Windows recognizes the USB cable, the notification shown below appears on the task tray and the driver installation wizard appears.
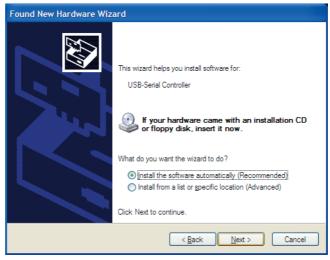
3. Install the device driver.
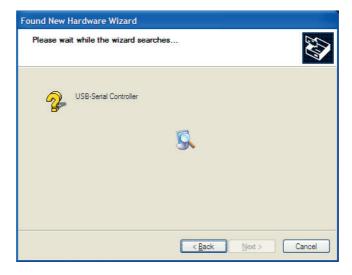
(1) Usually, when Windows recognizes the USB loader cable, the window shown below appears. (In some cases, depending on the Windows environment, it may not appear.) Select [No, not this time] and click the [Next >] button.

(2) For the retrieval location of the device driver to be installed, select [Install from a list or specific location (Advanced)] and click the [Next >] button.
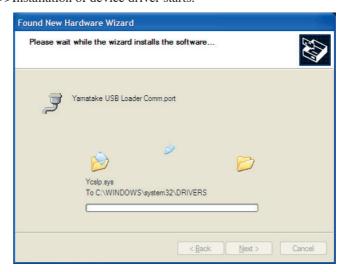
>>Retrieval of the device driver starts.

>>When the device driver is found, the following window appears:

(3) Click the [Continue Anyway] button.

>>Installation of device driver starts.

>>When the device driver installation is complete, the following window appears:
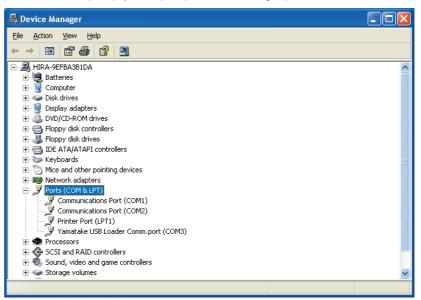
(4) Click the [Finish] button.

>>When the installation is complete, the notification shown below appears on the task tray, and Windows now correctly recognizes the USB loader cable.
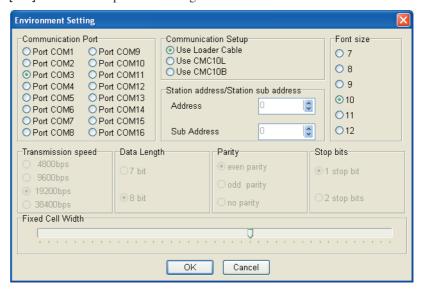
(5) Get the number of the Yamatake USB Loader Comm. port from [Ports (COM & LPT)].

[Ports (COM & LPT)] may be found by navigating to [Control Panel] → [System] → [Hardware] → [Device Manager] (for Windows XP/2000), or [Control Panel] → [System] → [Device Manager] (for Windows 98/Me).
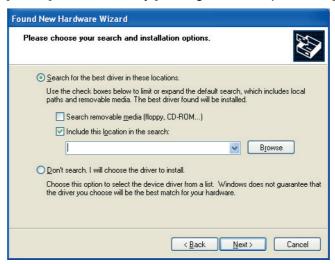
(6) Start the Smart Loader Program, select [Menu] → [Option(E)], and set to the communications port number obtained in the previous step. Then press the [OK] button to complete the configuration.

📖 Note

If the CD-ROM for the SLP is not available for the retrieval of the device driver to be installed in step (2) above, select [Install from a list or specific location (Advanced)] and click the [Next >] button.

Then, click [Browse] to specify the folder in which SLP is installed, and click [Next >] button. Normally [C:\Program Files\slp\SLPC35].

Proceed with steps (3) to (6).

■ Uninstalling the device driver

⚠ Handling Precautions

- Removing the driver requires restarting the computer. Close other applications first, and then uninstall the driver.

- To uninstall the driver, administrator rights are required on the computer. Uninstalling should be done by the administrator or by a user who belongs to the administrator group.

1. Put the SLP CD-ROM into the CD-ROM drive of the personal computer.

When the installation program starts, cancel it.

(1) Start the removal program, DrvRemover_Ycslip.exe, by double-clicking the
🗑 icon on the CD-ROM.
If the SLP CD-ROM is not available, there is also a copy of DrvRemover_Ycslip.exe in the folder in which SLP is installed. Normally [C:\Program Files\slp\SLPC35].
>>A confirmation dialog box for the driver removal appears.

(2) Click the [OK] button.
>>The following window appears:

(3) To complete the removal of the driver, the computer must be restarted.
Click the [Yes] button to restart the computer.

2 - 3   Starting and Quitting the Loader

■ Starting the loader

Double-click the SLP-C35 (SDC15/25/26/35/36) [icon] icon on the desktop or click the [Start] button at the lower left portion of the screen and select [Programs] → [SLP] → [SLP-C35].

>>The Smart Loader starts up and the menu window is displayed.

📖 Note

- For operating system details and mouse setup, refer to the user's manuals provided with Windows.

■ Quitting the loader

Click the [X] icon at the top right of the screen, or selecting [Menu] → [Quit] gives the same result.

Chapter 3.　SETUP

3 - 1　　　Setup Function

■ **Overview**

The setup function allows the user to set various parameters (from 10 to 70 constants required for operation) and write these parameters to the SDC15/25/26/35/36 so that it functions according to the user's particular control requirements. When the SDC15/25/26/35/36 is used for the first time, it will not function as required unless it is set up by using this setup function.

Parameters such as SP (set point) and control constants (PID values) that are changed relatively frequently while the SDC15/25/26/35/36 is running can also be set from the Smart Loaders monitor function screen.

With the setup function, parameters that rare need changing once they are set are saved to a file in list format before the SDC15/25/26/35/36 is started, and the saved file is called up and written to the SDC15/25/26/35/36 in a single operation.

■ **Screen explanations**
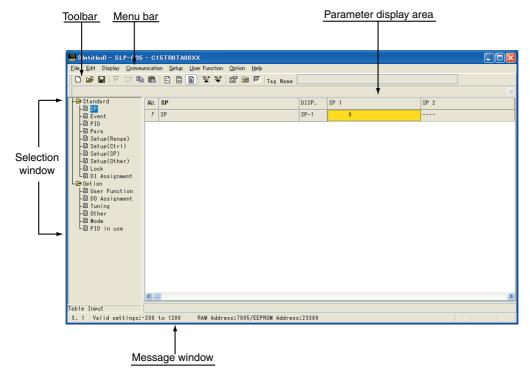
● **Menu screen**

　• Menu configuration list

Menu	Icon	Submenu	Description	Shortcut Keys
Menu		Setup	Displays the Setup window.	Ctrl+S
		Monitor	Displays the Monitor / Trend window.	Ctrl+M
		Calibration (J)	Displays the Adjustment window.	Ctrl+J
		Option (E)	Changes the environment setup.	Ctrl+E
		Quit	Quits the application.	Ctrl+Q
Help		Version (A)	Displays the version information.	Ctrl+A

● **Setup screen**

Toolbar   Menu bar   Parameter display area

Selection
window

Message window

● **Menu configuration list**

Menu	Icon	Submenu		Description	Shortcut Keys
File		New		Creates new data.	Ctrl+N
		Open		Opens existing data.	CtrlvO
		Save		Saves the active data.	Ctrl+S
		Save As		Saves the active data with a new name.	Ctrl+A
		CSV Out (X)	CSV Out (X)	Saves the active data in CSV format.	Ctrl+X
			CSV Out2 (Y)		
			CSV Out3 (Z)		
		HTML Out (H)	HTML Out1 (H)	Saves the active data in HTML format.	Ctrl+H
			HTML Out2 (I)		
			HTML Out3 (J)		
		Print		Prints out the data. (Same contents as data saved in the HTML format.)	-
		Recent File		Displays the recent file.	
		Quit		Quits the application.	Ctrl+Q
Edit		Data Check		Checks all setting values.	Ctrl+D
		Bit edit		Inputs to bit lists.	Ctrl+B
		Input/Output Port setup		Displays the input/output port setup screen.	Ctrl+P
		Copy		Makes a copy of the source.	Ctrl+C
		Paste		Pastes the stored copy data.	Ctrl+V
Display		Basic (L1)		-	-
		Standard (L2)		-	-
		High function (L3)		-	-
		Parameter disp area		Displays the parameter display area.	-
		Hint enable		Enables hint display.	-
		Auto size		Enables auto-cell size.	-
		Size initalize		Initializes the cell size.	-
		Cell size adjust		Matches cell size to the window.	-
Communication		Read (SDC -> SLP) (R)		Reads the device's data.	Ctrl+R
		Write (SLP -> SDC) (W)		Writes the data to the device.	Ctrl+W
Setup		Standard		-	-
		Option		-	-
User Function		User function		Displays the user function assignment screen.	-
		User function clear		Clears user function assignments	-
Option		Type Setting		Changes the type setup.	Ctrl+T
		Environment Setting		Changes the environment setup.	Ctrl+E
Help		Version (A)		-	-

3 - 2　　　Method of Setup

Do setup offline (without connecting the cable to the controller).

Click [Option] on the menu screen. Do the following setup tasks:

> Step 1: Set the Smart Loader type
>
> Step 2: Initialize (clear previous settings)
>
> Step 3: Set up the environment
>
> Step 4: Set up SDC15/25/26/35/36 parameters
>
> Step 5: Save setup data
>
> Step 6: Download the settings

> ⚠ **Handling Precautions**
>
> • Steps 1 to 5 are required before the setup parameters are written to the SDC15/25/26/35/36. Be sure to perform these steps. Otherwise, the SDC15/25/26/35/36 may be set up incorrectly. For example, the required setup items may not be displayed or unneeded items may be displayed.
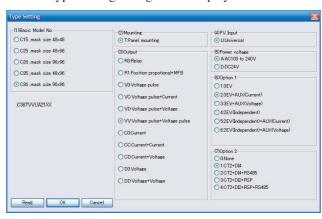
● **Step 1. Set the Smart Loder type**

> Set the loader program type to match the SDC15/25/26/35/36 model number.
>
> (1) Click the 🖳 icon.
>
> Selecting [Option] → [Type Setting] or pressing the [Ctrl] + [T] key gives the same result.
>
> >> The Type Setting dialog box is displayed.

> (2) Set the mounting type, control output, input type, power voltage and additional functions.
>
> (3) Choose the desired selections for each item.
>
> (4) Click the [OK] button.

> 📖 **Note**
>
> • Click the [Read] button to read product data from the device. This method prevents the downloading of wrong parameters due to a model number setup error.

⚠ **Handling Precautions**

- The type set here is a setting for the internal use of the loader program. The model number of the SDC15/25/26/35/36 will not change even if the type is changed in the loader program.
- For an explanation of each of the specifications, refer to:

  ☞ SDC15 Single Loop Controller User's Manual: "Installation & Configurations" (CP-SP-1148E on page 1-2)

  SDC25/26 Single Loop Controller User's Manual: "Installation & Configurations" (CP-SP-1149E on page 1-2)

  SDC35/36 Single Loop Controller User's Manual: "Installation & Configurations" (CP-SP-1150E on page 1-2)

● **Step 2. Initialize**

(1) Click the 🗋 icon.

Selecting [File] → [New] or pressing the [Ctrl] + [N] keys gives the same result.

\>>The Initialize Data dialog box appears.

Information	✕
ⓘ Initialize Data	
OK	Cancel

(2) Click the [OK] button.

\>> A new file opens.

● **Step 3. Set up the environment**

Set the communications port and font on the personal computer.

(1) Click the 🖼 icon.

The operation is the same by Selecting [Option] → [Environment Setting] or pressing the [Ctrl] + [E] keys gives the same result.

>>The Environment Setting dialog box appears.

(2) Select the desired communications port.

(3) Select the desired font size.

(4) Click the [OK] button.

!️ **Handling Precautions**

• Normally, use "Port COM1."
  Even if another communications port can be selected, it sometimes cannot be used depending on its characteristics.

• Normally, select "Use Loader Cable."

● **Step 4. Set up the SDC15/25/26/35/36 parameters**

Move the cursor to the target channel for each setup item, and do the following:

• When the setting is a numerical value

  Enter the numerical value, and press the [Return] key.

• When the setting is selected by a number

  Press the right mouse button (right-click) on a setup item. The list of settings you can select will appear. Select a desired item to complete the setting.

Set each of the parameters required for running the SDC15/25/26/35/36. The following two types of parameters are set:

• Basic functions:

  Basic functions for device operation such as control and communications functions

• Optional functions:

  Includes user-defined functions, DO assignment, and extended tuning.

⚠ **Handling Precautions**

• "– – – –" is displayed within the cell if setup of a parameter is not required or is prohibited by previous settings. The parameter cannot be set. If neccessary, re-check the type setting or other related settings.

• Items on the horizontal axis are channel numbers when basic functions are being set up, and are event output numbers or external switch input numbers when optional functions are being set up.

• About connection to the personal computer
Normally, the controller is connected to the personal computer with the dedicated cable.

By selecting [Option] → [Environment Setting] and setting [Communication Setup] to [Use CMC10L] or [Use CMC10B], the controller can be connected through the CMC10B/L. In this case, the environment setting and communication setup on the controller main unit must be configured beforehand.

Configure the controller settings in the offline mode (with the cable not connected to the controller).

📖 **Note**

• For details on functions, refer to:
☞ SDC15 Single Loop Controller User's Manual: "Installation & Configurations" (CP-SP-1148E)

SDC25/26 Single Loop Controller User's Manual: "Installation & Configurations" (CP-SP-1149E)
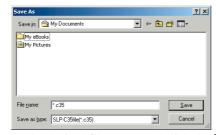
SDC35/36 Single Loop Controller User's Manual: "Installation & Configurations" (CP-SP-1150E)

● **Step 5. Save setup data**

When you have finished with the settings, save them to a file.
Saving settings in advance and using saved settings greatly reduces the time required to set up the loader program. The following items are saved:

• Type
• Setup parameters

(1) Select [File] → [Save As] or press [Ctrl] + [A].
>>The Save As dialog box appears.

(2) Enter the desired file name and click the [Save] button.

● **Step 6. Download the settings**

Write the set parameters or parameters called up from a saved file to the SDC15/25/26/35/36.

(1) Use the dedicated Smart Loader cable to connect the personal computer to the SDC15/25/26/35/36.

(2) Turn the SDC15/25/26/35/36 on.

(3) Click the 🔽 icon.

Selecting [Communication] → [Write (SLP→SDC)] from the pull-down menu gives the same result.

>> The message "Writing is going to be executed" is displayed.

(4) Click the [OK] button.

>> This starts the writing of the setup parameters.

During writing, the message [Please wait] is displayed. When writing ends, the message [Normal end] is displayed.

⚠ **Handling Precautions**

• If writing fails, the message [Communications error has occurred] is displayed. If writing is not possible, refer to:
☞ Chapter 5. TROUBLESHOOTING.

Chapter 4. MONITORING

4 - 1   Monitor Function

■ **Overview**

The loader exclusively for the SDC15/25/26/35/36 is used for monitoring SDC15/25/26/35/36 operation.

To enter the monitor screens, click [Monitor] in the menu screen.

The loader has the following two monitor screens:

• Numeric Monitor screen:

  This screen is for performing operations such as changing setups or switching modes.

  • Numeric display of the various running parameters
    (parameters can be changed)

  • Lamp indication of the various running modes
    (lamp indications can be operated)

  • Alarm display (representative and detailed)

• Trend Monitor screen:

  This screen is for monitoring the running state of the SDC15/25/26/35/36 in the form of a trend graph.

  • Screen display of trends for max. of sixteen data items

  • Screen display of digital data trends for max. of five data items

  • Export of sampled data as CSV file

  • Trend screen dumps

  • Data type:
    PV, SP, MV, user-defined data (all analog data that can be communicated)

  • Sampling cycle:
    Variable within the range 1 to 3600s

  • Max. sampling count:
    60,000 (fixed regardless of number of data items to sample)

📖 **Note**

  • A "CSV file" is the data format that can be handled in third-party spreadsheet software such as Microsoft Excel. In this format, sampled trend data can be interpreted in spreadsheet software.

These screens can be used to perform the following operations:
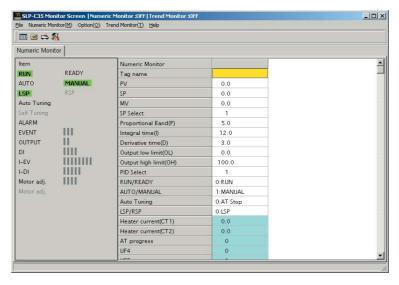
• Monitoring of the running state and changing of parameters in the Numeric Monitor screen

• Switching of the run mode in the Numeric Monitor screen

• Tuning of control constants in the Numeric Monitor screen

• Monitoring of trends and sampling of data while the SDC15/25/26/35/36 is running

• Monitoring of alarm states in the Numeric Monitor screen

⚠ **Handling Precautions**

• About connection to the personal computer
  When making the setup or operating the monitor using the loader, connect the loader cable.

• Before starting the trend monitor, configure the settings suitable for the trend monitor.

• The sampling cycle sometimes shifts due to fluctuations in the communications cycle. To perform measurement at exact times, use the special recorder or data logger.

■ Screen explanations
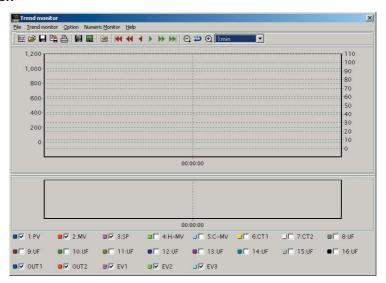
● Numeric monitor screen

• Menu configuration list

Menu	Icon	Sub Menu	Description	Shortcut Keys
File		Quit	Quits the Monitor window.	Ctrl+Q
Numeric Monitor (M)		Numeric Monitor Start/Stop (M)	Starts/stops the monitor.	Ctrl+M
Option (O)		Setup	Displays the Setup window.	-
		Alarm (A)	Displays the Alarm Details window.	-
		Command Line (C)	Displays the Command Line window.	-
Trend Moni Monitor (T)		-	Changes the display to the trend monitor.	-
Help		Version(A)	Displays the version information.	-

● **Trend monitor screen**

• Menu configuration list
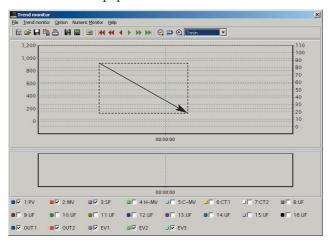
Menu	Icon	Sub Menu	Description	Shortcut Keys
File		Quit	Quits the Monitor window.	Ctrl+Q
Trend monitor		Trend monitor Start/Stop (T)	Starts/stops the trend monitor	Ctrl+T
		CSV Read	Reads the trend data.	-
		CSV Out(X)	Outputs the trend data in CSV format.	Ctrl+X
		Clipboard Graph Out	Outputs an image of the graph to the Clipboard.	Ctrl+C
Option		Setup	Displays the Setup window.	-
Numeric Monitor		-	Changes the display to the numeric monitor	-
Help		Version(A)	Displays the version information.	-

• Icon list

Icon	Description
⏮	Returns the graph to the start time.
⏪	Returns the graph by 1/2 screen.
◀	Returns the graph by 1/4 screen.
▶	Advances the graph by 1/4 screen.
⏩	Advances the graph by 1/2 screen.
⏭	Advances the graph to the latest time.
⊖	Zooms out the graph.
↩	Undoes the graph zoom.
⊕	Zooms in the graph.
1min ▾	Specify a time scale of the graph. 1min. 2min. 10min. 1hr. 12hrs. 24hrs. Auto
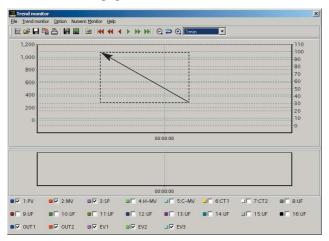
• Zooming the graph

Drag the mouse from the upper left portion to the lower right portion with the left mouse button kept pressed.

• Canceling the zoomed graph

Drag the mouse from the lower right portion to the upper left portion with the left mouse button kept pressed.

4 - 2   Method of Operation

■ How to operate the numeric monitor screen

● Start of monitoring (start of communications)

The operation described below is required to start monitoring.

Otherwise, monitoring and rewriting of data cannot be performed.

• Click ▦ icon.

The operation is the same by selecting [Numeric Monitor] → [Numeric Monitor Start].

>> During normal operation: The data on the SDC15/25/26/35/36 is displayed.

During an error: The message [Check the device to which the loader is connected.] is displayed. Remedy according to Chapter 5. TROUBLESHOOTING.

The following operations are possible when the device and the loader are correctly connected:

● Monitoring of run state and changing of parameters

Numeric monitor (displayed in table format) Numeric group monitor	Tag name Process Variable (PV) Set point (SP) Manipulated variable (MV)
State monitor (displayed in lamp lighting format)	RUN/READY mode, AUTO/MANUAL mode LOACAL/REMOTE state Auto-tuning start/stop state Self-tuning start/stop state ALARM mode Control output ON/OFF state Event output ON/OFF state Internal event ON/OFF state DI terminal ON/OFF state
Operation (Operations possible in numeric changes are limited as follows.)	SP value change SP set change Manipulated variable (MV) change in MANUAL mode PID value change RUN↔READY switching AUTO↔MANUAL switching Auto-tuning start↔stop switching
About the operation mode	RUN/READY mode 0: RUN 1: READY AUTO/MANUAL mode 0: AUTO 1: MANUAL

● **Changing of data**

Operation by entry of numerical values → Enter the numerical value, and press the [Return] key.

● **Setting of user-defined address**

Optional data not in the table can be registered to user configuration address UF 1 to 8 in the table. Data can be read or written according to the data type.

• How to set user-defined address:

(1) Select the [Set monitor] tag under [Option (O)] → [Setup] in the pull-down menu.

(2) Enter the address of the data to display according to SDC15 Single Loop Controller User's Manual "Installation & Configurations" CP-SP-1148E, SDC25/26 Single Loop Controller User's Manual "Installation & Configurations" CP-SP-1149E and SDC35/36 Single Loop Controller User's Manual "Installation & Configurations" CP-SP-1150E.

● **Use of the command line**

Data can be read or written or the mode switched by directly entering communications commands on the command line.

⚠ **Handling Precautions**

• Transmission of the wrong command may result in trouble on the SDC15/25/26/35/36. For this reason, take sufficient care when describing command types, addresses, data and other information.

• For details on communications commands and data addresses, refer to;

☞ SDC15 Single Loop Controller User's Manual "Installation & Configurations" CP-SP-1148E

SDC25/26 Single Loop Controller User's Manual "Installation & Configurations" CP-SP-1149E

SDC35/36 Single Loop Controller User's Manual "Installation & Configurations" CP-SP-1150E.

• Loader lock is enabled.

● **Checking details of alarms**

You can check the details of alarms in the Alarm window when an alarm occurs.

• Click 🖳 icon.

The operation is the same by selecting the [Option (O)] → [Alarm (A)].

• The details of the alarm that is occurring are displayed.

⚠ **Handling Precautions**

• This window displays the details of currently occurring alarms, and does not have a function for restoring the SDC15/25/26/35/36. To restore the SDC15/25/26/35/36, you must perform the appropriate remedy described in Chapter 5. TROUBLESHOOTING.

● **About the numeric group monitor**

The numeric group monitor can be used when [Connect via CMC10] is set by the [Environment Setting] → [Communication Setup]. Connect the loader cable to CMC10B/L.

Up to eight groups can be monitored.

■ How to operate the trend monitor

● **Setup**

Select [Trend], [Trend monitor individual], and [Digital trend] at [Option (O)] → [Setup], and make the following settings for each sampled data (1 to 16).

As the cycle and display upper/lower limits are common to all channels.

• Trend

Setting Item	Description	Setting Range	Factory Setting
Cycle	Setting of sampling cycle	1 to 3600s	1
Display low limit of left axis	Lower value of vertical axis of screen display	-1999 to display upper limit	0
Display high limit of left axis	Upper value of vertical axis of screen display	Display lower limit to 9999	1200
Display low limit of right axis	Lower value of vertical axis of screen display	-1999 to display upper limit	-10
Display high limit of right axis	Upper value of vertical axis of screen display	Display lower limit to 9999	110

• Trend monitor individual

Setting Item	Description	Setting Range	Factory Setting
Data type	Type of sampled data	0 : Not used 1 : PV 2 : MV 3 : SP 4 : H-MV 5 : C-MV 6 : CT1 7 : CT2 8 : User-defined data	-
Axis	Specify an axis used for the graph.	0 : Left 1 : Right	-
User-defined address	Address of relevant parameter when the data type is set as "user type"	Address of communicable parameter	256
Station adress	Set the station address when a CMC10B, for example, is used.	0 to 127	1
Station sub-adress	Set the station sub-address when a CMC10B, for example, is used.	0 to 127	0
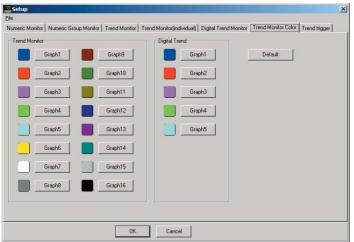
⚠ **Handling Precautions**

• When the user-defined address is specified, make the decimal point setting manually.

• Digital trend

Setting Item	Description	Setting Range
Address	Address of parameter	256 to 32767
Bit	Specified bit of parameter	0 to 15
Name	Name of parameter	Up to 10 alphanumeric characters

• Selecting trend monitor colors

When selecting [Graph 1] to [Graph 16], the color selection screen will appear.
Select a desired color.
Clicking [Default] will return the color setting to its initial value.

• Setting up the trend trigger

Setup

File

Numeric Monitor | Trend Monitor | Trend Monitor(individual) | Digital Trend Monitor | Trend Monitor Color | Trend trigger

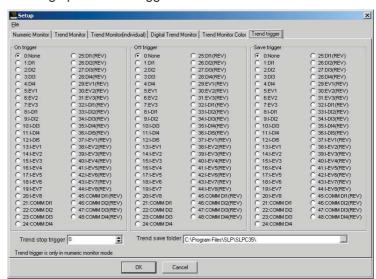| On trigger		Off trigger		Save trigger	
0:None	25:DI1(REV)	0:None	25:DI1(REV)	0:None	25:DI1(REV)
1:DI1	26:DI2(REV)	1:DI1	26:DI2(REV)	1:DI1	26:DI2(REV)
2:DI2	27:DI3(REV)	2:DI2	27:DI3(REV)	2:DI2	27:DI3(REV)
3:DI3	28:DI4(REV)	3:DI3	28:DI4(REV)	3:DI3	28:DI4(REV)
4:DI4	29:EV1(REV)	4:DI4	29:EV1(REV)	4:DI4	29:EV1(REV)
5:EV1	30:EV2(REV)	5:EV1	30:EV2(REV)	5:EV1	30:EV2(REV)
6:EV2	31:EV3(REV)	6:EV2	31:EV3(REV)	6:EV2	31:EV3(REV)
7:EV3	32:I-DI1(REV)	7:EV3	32:I-DI1(REV)	7:EV3	32:I-DI1(REV)
8:I-DI1	33:I-DI2(REV)	8:I-DI1	33:I-DI2(REV)	8:I-DI1	33:I-DI2(REV)
9:I-DI2	34:I-DI3(REV)	9:I-DI2	34:I-DI3(REV)	9:I-DI2	34:I-DI3(REV)
10:I-DI3	35:I-DI4(REV)	10:I-DI3	35:I-DI4(REV)	10:I-DI3	35:I-DI4(REV)
11:I-DI4	36:I-DI5(REV)	11:I-DI4	36:I-DI5(REV)	11:I-DI4	36:I-DI5(REV)
12:I-DI5	37:I-EV1(REV)	12:I-DI5	37:I-EV1(REV)	12:I-DI5	37:I-EV1(REV)
13:I-EV1	38:I-EV2(REV)	13:I-EV1	38:I-EV2(REV)	13:I-EV1	38:I-EV2(REV)
14:I-EV2	39:I-EV3(REV)	14:I-EV2	39:I-EV3(REV)	14:I-EV2	39:I-EV3(REV)
15:I-EV3	40:I-EV4(REV)	15:I-EV3	40:I-EV4(REV)	15:I-EV3	40:I-EV4(REV)
16:I-EV4	41:I-EV5(REV)	16:I-EV4	41:I-EV5(REV)	16:I-EV4	41:I-EV5(REV)
17:I-EV5	42:I-EV6(REV)	17:I-EV5	42:I-EV6(REV)	17:I-EV5	42:I-EV6(REV)
18:I-EV6	43:I-EV7(REV)	18:I-EV6	43:I-EV7(REV)	18:I-EV6	43:I-EV7(REV)
19:I-EV7	44:I-EV8(REV)	19:I-EV7	44:I-EV8(REV)	19:I-EV7	44:I-EV8(REV)
20:I-EV8	45:COMM DI1(REV)	20:I-EV8	45:COMM DI1(REV)	20:I-EV8	45:COMM DI1(REV)
21:COMM DI1	46:COMM DI2(REV)	21:COMM DI1	46:COMM DI2(REV)	21:COMM DI1	46:COMM DI2(REV)
22:COMM DI2	47:COMM DI3(REV)	22:COMM DI2	47:COMM DI3(REV)	22:COMM DI2	47:COMM DI3(REV)
23:COMM DI3	48:COMM DI4(REV)	23:COMM DI3	48:COMM DI4(REV)	23:COMM DI3	48:COMM DI4(REV)
24:COMM DI4		24:COMM DI4		24:COMM DI4	

Trend stop trigger [0]   Trend save folder [C:\Program Files\SLP\SLPC35\] [...]

Trend trigger is only in numeric monitor mode

[OK] [Cancel]

When setting up the trend triggers, the trend can be started and stopped according to the status of the individual monitor.
The trend trigger setup is valid only while the individual monitor is running.
When setting up the trend save triggers, the trend can be saved according to the status of the individual monitor.
The file is saved into a specified trend save folder in the "TREND-YYYY-MM-DD-HH-MM-SS.CSV" format.

● **Starting the data sampling**

When the setup is completed, start up the trend monitor.
Click [icon] icon.
The same operation can be started by selecting [Trend Monitor] → [Trend Monitor Start].
The data sampling is started, and then the trend of the specified parameters is displayed on the screen.
• Once the trend monitor is started, it continues until the stop operation is performed or the data for 60,000 cycles is sampled.
• If the stop operation is not performed, the data is overwritten onto the old data when the data sampling for 60,000 cycles is completed.
• The screen can be transited to the "Numeric Monitor" screen while the trend monitor is running. However, the loader cannot be quitted or the screen cannot be transited to the "Setup" screen. To do so, quit the trend monitor.

● **Stopping the data sampling**

Select [Trend Monitor] → [Trend Monitor Stop].
The trend monitor is then stopped.

● **Saving sampled data**

The data sampled using the trend monitor can be saved into a file in the CSV format. The sampled data saved in the CSV format can be processed using spreadsheet applications, such as Microsoft Excel.

! **Handling Precautions**

• The data can be saved into a file even while the trend monitor is running.

• The data, which has been saved into a file, is retained in the personal computer unless it is initialized. However, the data saved in the file cannot be redisplayed on the loader screen.
  To display such data, use an appropriate spreadsheet application.

● **Saving clipboard graph output**

The display contents on the "Trend Monitor" screen can be directly saved into the clipboard as a copy of the screen.

Chapter 5.   TROUBLESHOOTING

5 - 1   Error Messages and Remedy

■ Communications error messages

Category	Message	Description	Remedy
Communication error	Time out.	The message cannot be received within a period of the time-out time. An instrument other than SDC15/25/26/35/36 is connected. The main unit is not connected.	Check the cable connections and contacts. Use the loader with it connected to SDC15/25/26/35/36.
	Cannot open communications port.	The communication port cannot be opened.	Do not run the loader and other application using the communication port at the same time.
	Communications error has occurred.	The system error occurs.	Re-operate or quit the loader to restart Windows.
	Trend monitor is active.	The monitor screen cannot be quitted while the trend monitor is running.	Quit the monitor screen after the trend monitor has been completed.
SDC15/25/26/ 35/36 status error	Cannot support currently connected SDC15/25/26/35/36.	The loader currently in use is not applicable to the version of the main unit.	Contact Yamatake Corporation or its dealer.
	Loader Lock or Communication Lock.	The data cannot be loaded from the loader since the loader is locked or the password is set.	Cancel the loader lock or password to restart the operation.

■ File error messages

Category	Message	Description	Remedy
File name error	This filename is not valid.	An invalid file name is input.	Input a correct file name.
	This file cannot be found. Make sure that the correct path and filename are given.	A file name not existing is input.	Input an existing file name.
	This filename is a reserved device name. Use a different filename.	A file name reserved for the device name is input.	Input a correct file name.
Disk error	Not enough free space on disk.	The disk free capacity is insufficient.	Keep a sufficient disk free capacity.
	The device is not ready.	The disk is not ready.	Prepare the disk and restart the operation.
	Cannot make file.	The CD-ROM is specified as save destination.	Save the file to another directory.
	File name too long.	The file name is too long.	Use 256 characters or less for the file name.
Pass name error	The path does not exist. Make sure that the correct path is given.	An illegal path name is input.	Input a correct path name and restart the operation.
File information error	Illegal file size. Illegal file information.	The file is corrupted.	Corrupted file cannot be used. Create a file again.

5 - 2   Other Troubleshooting

Trouble	Description	Remedy
Numeric values are not displayed correctly.	If a decimal point symbol other than " . " (period) is set, the loader does not function correctly.	Check that the decimal point symbol is " . " (period). If not, set the decimal point symbol to " . " (period).

Revision History

Printed date	Manual Number	Edition	Revised pages	Description
Oct. 2005	CP-UM-5290E	1st Edition		
June 2008		2nd Edition	1-2	References to serial port deleted. Vista operating system added.
			2-1	" ■ Installing the software" deleted, and section heading "2-1 Installing the loader" added.
			2-6 to 2-11	Section 2-2, "Device Driver Installation for USB Loader Cable," added.
			2-12	Section 2-3, "Starting and quitting the loader," added. "Starting the program" and "Quitting the program" sections moved here from page 2-5.
			3-3	"Recent files" submenu added to File menu. Submenu details added to CSV Out and HTML Out submenus.