OMRON

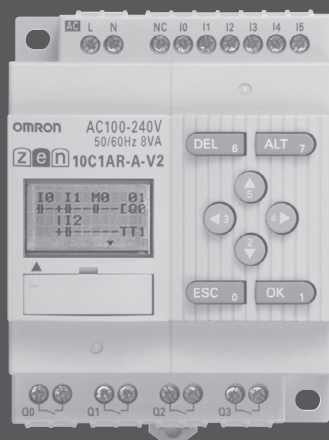**ZEN-SOFT01-V4**

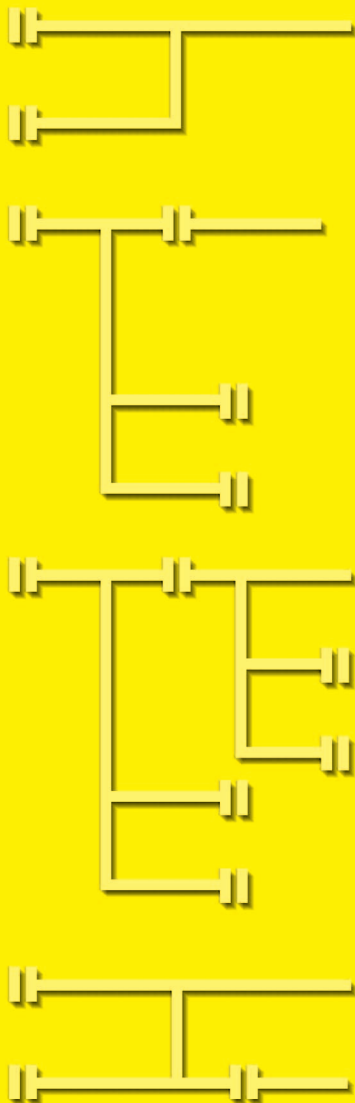# ZEN Support Software

OPERATION MANUAL

ZEN Support Software

ZEN-SOFT01-V4 ZEN Support Software

Operation Manual

Revised December 2008

Preface

OMRON products are manufactured for use according to proper procedures by a qualified operator and only for the purposes described in this manual.

This manual describes the functions, performance, and application methods needed for optimum use of the ZEN Programmable Relay.

The ZEN is a compact and highly functional controller that can be used to easily automate small-scale applications. Its development has drawn on OMRON's advanced control technology and expertise in manufacturing various types of controllers.

Before using the ZEN, read this manual carefully so that you can use the ZEN correctly. Keep the manual close at hand so that you can refer to it whenever necessary.

Warranty and Application Considerations

Read and Understand this Manual

Please read and understand this manual before using the product. Please consult your OMRON representative if you have any questions or comments.

Warranty and Limitations of Liability

Warranty and Limitations of Liability

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

Application Considerations

Application Considerations

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this manual.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

PROGRAMMABLE PRODUCTS

OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

Disclaimers

<table>
<tr><td colspan="1" align="center">Disclaimers</td></tr>
</table>

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

PERFORMANCE DATA

Performance data given in this manual is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

ERRORS AND OMISSIONS

The information in this document has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.

Copyright and Copy Permission

<table>
<tr><td colspan="1" align="center">Copyright and Copy Permission</td></tr>
</table>

OMRON Product References

All OMRON products are capitalized in this manual. The word "Unit" is also capitalized when it refers to an OMRON product, regardless of whether or not it appears in the proper name of the product.

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Note Read this Agreement prior to using the software.

This software (hereafter called the "Software") shall be used only after the user (hereafter called the "User" and referring to either individuals or companies) has agreed to the following conditions for usage (hereafter called the "Agreement"). This Agreement is a legal contract that is formed between the User and OMRON Corporation (hereafter called "OMRON"). The act of installing, copying, or using the Software shall imply that the User agrees to the items of this Agreement. In the event that the User does not agree to the items of this Agreement, OMRON shall not grant the right for the User to install, copy, or use the Software.

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2. OMRON grants the User a non-exclusive, non-transferable, and limited license to use the Software on one or more computer(s) owned by the User.

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6. If the User breaches this Agreement, OMRON may terminate this Agreement upon notice to the User. In that event, the User shall return the Software and all copies thereof.

Revision History

A manual revision code appears as a suffix to the catalog number on the front cover of the manual.

Cat. No. Z184-E1-04
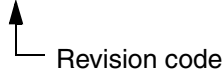
Revision code

The following table outlines the changes made to the manual during each revision. Page numbers refer to the previous version.

Revision code	Date	Revised content
01	May 2003	Original production
02	August 2005	Modifications and additions for Version 3.0 of the ZEN system software and Version 4.0 of the ZEN support software. Applicable models: ZEN-10C3□R-□-V2
03	January 2006	Modifications and additions for Version 3.0 of the ZEN system software and Version 4.1 of the ZEN support software including the following: Added 8-digit counters, 8-digit comparators, and event relays. Added twin timers. Added multiple-day operation and pulse-output operation for weekly timers. Added daylight saving time settings for Australia and New Zealand. Added RS-485 communications settings for models with communications. Deleted contrast control settings. Modified and added to warranty and safety information.
04	December 2008	Added Vista for operating system of compatible computers.

About this Manual

This manual describes the installation and operation of the ZEN-SOFT01 ZEN Support Software and includes the sections described below.

Please read this manual carefully and be sure you understand the information provided before attempting to install or operate the ZEN Support Software. Be sure to read the precautions provided in the following section.

Precautions provide general precautions for using the ZEN Support Software and related devices.

Section 1 describes how to install and start the ZEN Support Software. The screen configuration is also explained, along with the submenus for the Menu Bar, Toolbar, and Status Bar.

Section 2 describes how to create, save, edit, and print ladder programs.

Section 3 describes how to connect to the ZEN and how to transfer programs between the ZEN and the ZEN Support Software.

Section 4 describes the ZEN system settings, how to set passwords to protect the ZEN ladder programs, and how to clear the ZEN memory.

Section 5 describes the simulation function, which can be used to simulate ladder program execution without downloading the program to the ZEN.

Section 6 describes errors that may occur while using the ZEN Support Software and possible countermeasures.

The following two manuals are provided for the ZEN Programmable Relays. Refer to them as required in operation.

Manual	Contents	Cat. No.	
ZEN Programmable Relays Operation Manual	The ZEN specifications, functions, and operating methods.	V1 or Pre-V1 CPU Units	Z183
		V2 CPU Units	Z211
ZEN Programmable Relays Communications Manual	The ZEN-10C4 communications functions and operation.	Z212	
ZEN Support Software Operation Manual	Installation and operating procedures for the ZEN Support Software	Z184	

Note On the ZEN Support Software displays, bits in ZEN memory are called "relays," program input bits are called "contacts," and program output bits are called "coils."

⚠ **WARNING** Failure to read and understand the information provided in this manual may result in personal injury or death, damage to the product, or product failure. Please read each section in its entirety and be sure you understand the information provided in the section and related sections before attempting any of the procedures or operations given.

Visual Aids

The following headings appear in the left column of the manual to help you locate different types of information.

Note Indicates information of particular interest for efficient and convenient operation of the product.

1,2,3... 1. Indicates lists of one sort or another, such as procedures, checklists, etc.

Precaution Indicates precautionary information that should be heeded in using the ZEN.

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TABLE OF CONTENTS

PRECAUTIONS

This section provides general precautions for using the ZEN Support Software for the ZEN Programmable Relays.

The information contained in this section is important for the safe and reliable application of the ZEN. You must read this section and understand the information contained before attempting to set up or operate a ZEN.

1 General Precautions

The user must operate the product according to the performance specifications described in the operation manual.

Before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems, machines, and equipment that may have a serious influence on lives and property if used improperly, consult your OMRON representative.

Make sure that the ratings and performance characteristics of the product are sufficient for the systems, machines, and equipment, and be sure to provide the systems, machines, and equipment with double safety mechanisms.

This manual provides information for installing and operating OMRON Motion Control Units. Be sure to read this manual before operation and keep this manual close at hand for reference during operation.

⚠ **WARNING** It is extremely important that a PC and all PC Units be used for the specified purpose and under the specified conditions, especially in applications that can directly or indirectly affect human life. You must consult with your OMRON representative before applying a PC system to the above mentioned applications.

2 Safety Precautions

Confirm safety before attempting any of the following operations.

- Transferring the user program
- Changing the user program
- Changing the operating mode of the ZEN
- Turning relays ON or OFF

Always perform a program check on any program after writing it and before transferring it to the ZEN. Also confirm the operation of the program completely before using it for actual system operation.

Always disconnect the output circuits before performing operating tests on systems in which the loads connected to the output circuits can have a serious effect on human life or property if incorrect operation occurs.

3 Application Precautions

Observe the following precautions when using the ZEN Support Software.

- Observe the following precautions before starting the ZEN Support Software

  - Close all software programs not related to the ZEN Support Software. It is particularly important to close all programs that start periodically or intermittently, such as screen savers, virus checkers, email and other communications programs, and schedulers.

  - Do not share hard disks, printers, or other devices with other network computers while running the ZEN Support Software.

  - Some notebook computers set the RS-232C port to modem or infrared application by default. Change the settings according to the operating instructions for your computer so that the RS-232C port can be used as a normal serial communications port.

  - Some notebook computers set the RS-232C port to not supply power (5 V) to the port to save energy by default. Change the settings according to the operating instructions for your computer to provide power to the port. (There are Windows settings and also possibly settings for computer-specific utilities or BIOS settings to save power.)

- Do not turn OFF the power supply to the ZEN or disconnect the connecting cable while the ZEN Support Software is online with the ZEN. The computer may malfunction.

SECTION 1
Installation and Startup

This section describes how to install and start the ZEN Support Software. The screen configuration is also explained, along with the submenus for the Menu Bar, Toolbar, and Status Bar.

1-1   Before Operation

1-1-1   Product Contents

Check that the package for the ZEN Support Software (ZEN-SOFT01-V4) contains one CD-ROM setup disk.

1-1-2   Compatible Computers

The following table shows the computers that support the ZEN Support Software.

| Item	Conditions
Operating system	Windows 98, 98SE, ME, 2000, XP, NT4.0 Service Pack 3, or Vista
CPU	Pentium 133 MHz or faster Pentium 200 MHz or faster recommended.
Memory	64 Mbytes or more
HDD	40 Mbytes or more of available disk capacity
CD-ROM drive	Required
Communications	1 serial port (COM port)
Keyboard and mouse	Required
Monitor	800 x 600 dots (SVGA) min., 256 colors min.

1-2 Installing and Uninstalling the ZEN Support Software

1-2-1 Installation

1,2,3... 1. Insert the Setup Disk in the CD-ROM drive of the computer. After a short while the Language Selection Screen will be displayed. Select the required language and click the **Next** Button.
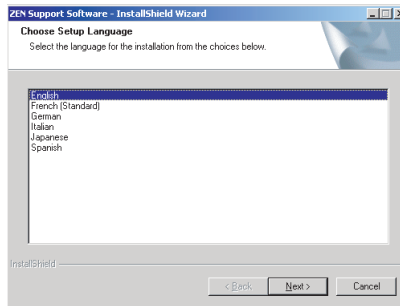
Note • If the Language Selection Screen is not displayed when the CD-ROM is inserted, go to *My Computer*, open the *Setup Disk (CD-ROM)* icon, and double-click the *Setup.exe* file.

• If a previous version of the ZEN Support Software is already installed, a confirmation dialog box for file deletion will appear when the CD-ROM is inserted. Click the **OK** Button. The previous version will be deleted and the maintenance completion dialog box will be displayed. Click the **Finish** Button, insert the CD-ROM again, and install the new version of the ZEN Support Software.

2. The Setup Screen will be displayed. Check the details, enter the required information, and click the **Next** Button.

3
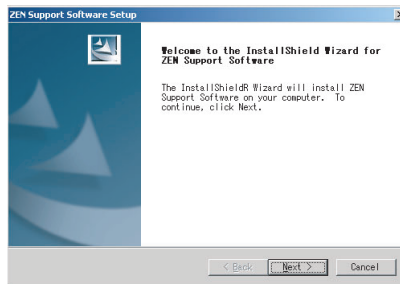
3. When the setup operation has been completed, the following screen will be displayed. Click the **Finish** Button.
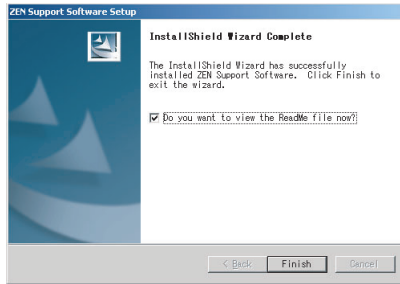
1-2-2   Uninstalling the ZEN Support Software

Use the following procedure to uninstall the ZEN Support Software from a computer.

1,2,3...   1. Select ***Settings/Control panel*** from the Windows Start Menu.

2. Select ***Add or delete applications*** from the Windows Control Panel and then select and delete ***OMRON ZEN Support Software.***

1-3 Starting and Quitting

1-3-1 Starting the ZEN Support Software

This section explains the procedure for starting and quitting the ZEN Support Software.

1,2,3...   1.   Select ***Program/Omron/ZEN Support Software/ZEN Support Software*** from the Windows Start Menu. After a moment the initial screen will be displayed.
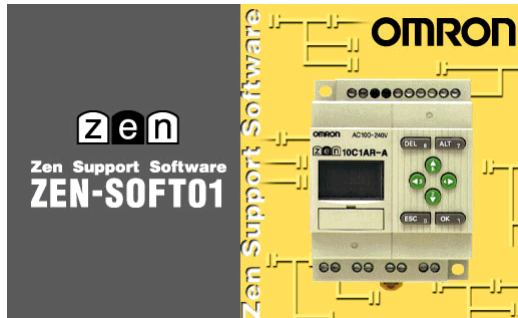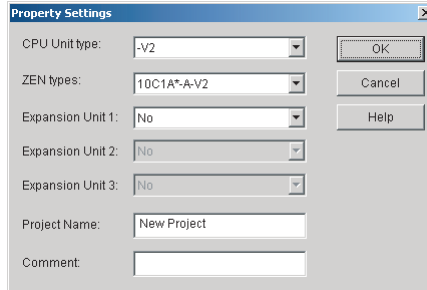

2.   When display of the opening screen is finished, the following screen will be displayed. Select ***Create a new program*** and click the **OK** Button.
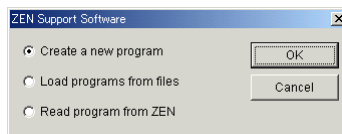
Note a) Click ***Load programs from files*** and double-click the **OK** Button to open existing ladder programs when starting up the ZEN Support Software. Refer to *2-6-2 Opening Saved Files* for the rest of the procedure for opening existing ladder programs.

b) If uploading a program from the ZEN is selected, the following will be performed automatically.

• Using the ZEN online function, the contents of the property settings (ZEN model and Expansion I/O Unit configuration) will be read from the ZEN and the settings will be made.

• The program will be transferred from the ZEN to the computer.

• The ladder diagram will be displayed.

3. The Property Settings Screen will be displayed. Enter the ZEN model and configuration (i.e., whether or not Expansion I/O Units are connected), the project name, and a comment and press the **OK** Button.
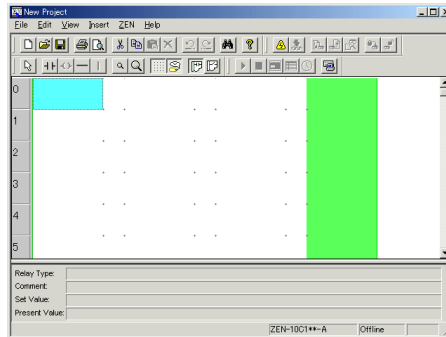

Up to 31 characters can be entered.

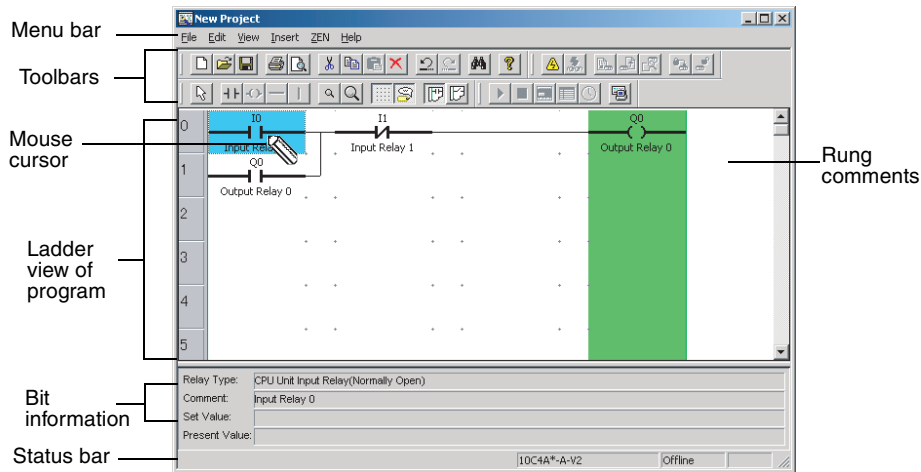4. The ZEN Support Software will start.

1-3-2 Quitting the ZEN Support Software

Select *File(F)/Exit(E)* from the Menu Bar to close the ZEN Support Software.
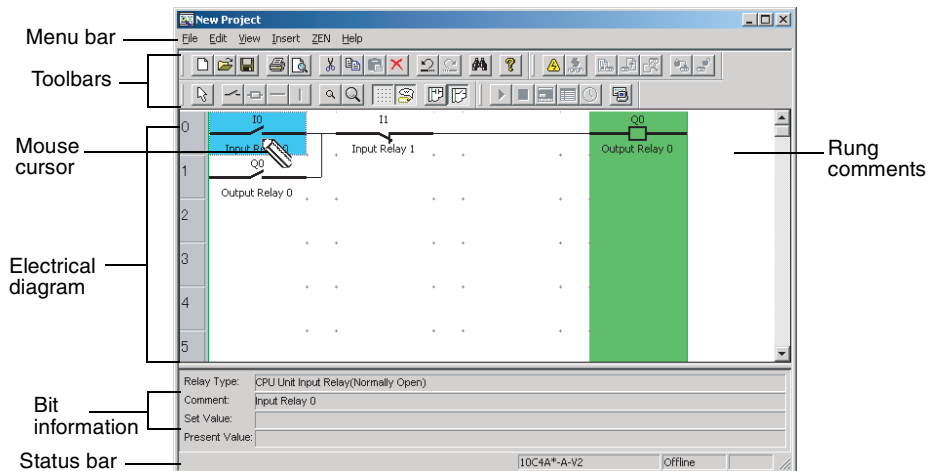
1-4 Screen Configuration

The ZEN Support Software allows the display to be set to either a Ladder Diagram Display or an Electric Circuit Display. The functionality of the ZEN Support Software is the same regardless of which display is used.
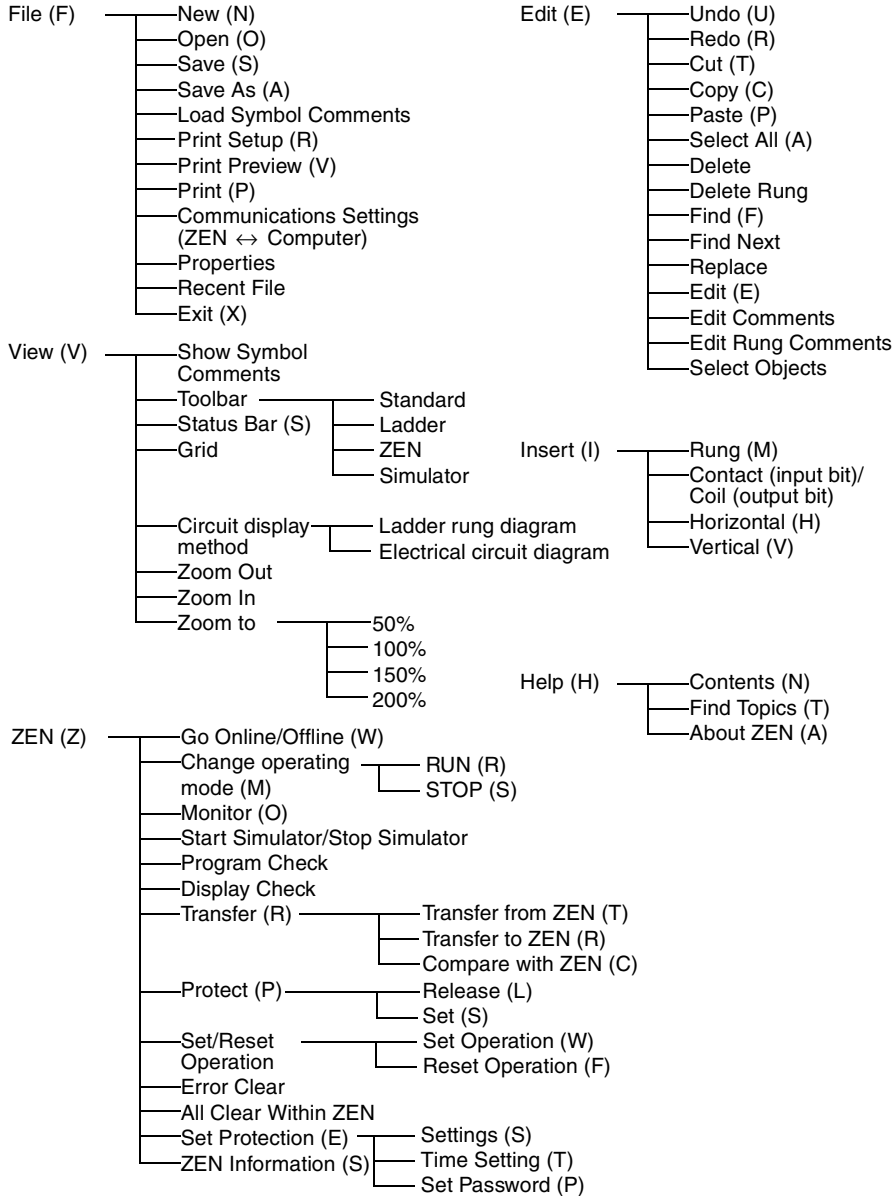
Ladder Diagram Display

Menu bar

Toolbars

Mouse cursor

Ladder view of program

Bit information

Status bar

Rung comments

Electrical Circuit Display

Menu bar

Toolbars

Mouse cursor

Electrical diagram

Bit information

Status bar

Rung comments

Note To switch between the ladder diagram and electrical diagram displays, either click on the buttons in the Toolbar or else select *View(V)/Circuit display method/Ladder rung diagram/ Electrical circuit diagram* from the File menu.

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Menu Bar   The Menu Bar functions are listed in the following menu tree.

File (F) ─────── New (N)
         ├─ Open (O)
         ├─ Save (S)
         ├─ Save As (A)
         ├─ Load Symbol Comments
         ├─ Print Setup (R)
         ├─ Print Preview (V)
         ├─ Print (P)
         ├─ Communications Settings
         │   (ZEN ↔ Computer)
         ├─ Properties
         ├─ Recent File
         └─ Exit (X)

Edit (E) ─────── Undo (U)
         ├─ Redo (R)
         ├─ Cut (T)
         ├─ Copy (C)
         ├─ Paste (P)
         ├─ Select All (A)
         ├─ Delete
         ├─ Delete Rung
         ├─ Find (F)
         ├─ Find Next
         ├─ Replace
         ├─ Edit (E)
         ├─ Edit Comments
         ├─ Edit Rung Comments
         └─ Select Objects

View (V) ─────── Show Symbol
         │   Comments
         ├─ Toolbar ─────── Standard
         ├─ Status Bar (S) ├─ Ladder
         ├─ Grid   ├─ ZEN
         │   └─ Simulator
         ├─ Circuit display ─── Ladder rung diagram
         │   method   └─ Electrical circuit diagram
         ├─ Zoom Out
         ├─ Zoom In
         └─ Zoom to ─────── 50%
                     ├─ 100%
                     ├─ 150%
                     └─ 200%

Insert (I) ─────── Rung (M)
          ├─ Contact (input bit)/
          │   Coil (output bit)
          ├─ Horizontal (H)
          └─ Vertical (V)

Help (H) ─────── Contents (N)
         ├─ Find Topics (T)
         └─ About ZEN (A)

ZEN (Z) ─────── Go Online/Offline (W)
        ├─ Change operating ─── RUN (R)
        │   mode (M)   └─ STOP (S)
        ├─ Monitor (O)
        ├─ Start Simulator/Stop Simulator
        ├─ Program Check
        ├─ Display Check
        ├─ Transfer (R) ─────── Transfer from ZEN (T)
        │   ├─ Transfer to ZEN (R)
        │   └─ Compare with ZEN (C)
        ├─ Protect (P) ─────── Release (L)
        │   └─ Set (S)
        ├─ Set/Reset ─────── Set Operation (W)
        │   Operation   └─ Reset Operation (F)
        ├─ Error Clear
        ├─ All Clear Within ZEN
        ├─ Set Protection (E) ─── Settings (S)
        └─ ZEN Information (S) ├─ Time Setting (T)
                          └─ Set Password (P)

Note   On the ZEN Support Software displays, bits in the ZEN memory
             are called "relays," program input bits are called "contacts," and
             program output bits are called "coils."

Toolbars   The following shortcut keys can be used from the Toolbars. Select
                 View(V)/Toolbar from the Menu Bar to display or not display the
                 Toolbars.

Standard

🗋	New
📂	Open
💾	Save
🖨	Print
🔍	Print Preview
✂	Cut
🗐	Copy
📋	Paste
✖	Delete
↺	Undo
↻	Redo
🔍	Find
?	About ZEN

Ladder

▷	Select objects
⊣⊢	Insert Contact (input condition)
⟨⟩	Insert Coil (output)
—	Insert Horizontal
|	Insert Vertical
🔍	Zoom Out
🔍	Zoom In
▦	Show Grid
🖺	Show Comments
🗊	Ladder rung diagram
🗋	Electrical circuit diagram

ZEN

⚠	Go Online/Offline
⚡	Toggle Monitoring
🖳	Transfer to ZEN
📥	Transfer from ZEN
🖳	Compare with ZEN
🔒	Set Protection
🔓	Release Protection

Simulator

▶	RUN
■	STOP
🖼	ZEN Image Display
📋	Present Value List Display
🕐	Clock Display
🖼	Start/Exit Simulator

Note   On the ZEN Support Software displays, bits in the ZEN memory
           are called "relays," program input bits are called "contacts," and
           program output bits are called "coils."

Mouse   There are two types of cursors used with the ZEN. A right-click menu
Cursors   can be used with either of them.

Pencil Cursor

Appears when performing ladder program input operations.

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Arrow Cursor

Appears when performing operations from the Menu Bar or the Toolbar. Also used for specifying the range when editing ladder programs.

Right-click Menu

Edit (E)
Find (F)
Cut (T)
Copy (C)
Paste (P)
Delete (D)
Set/Reset (S) ———— Set (W)
             └──── Reset (F)

Rung (L) ——————— Insert (W)
             └──── Remove (R)

Bit Information   Information on bits is displayed in the Bit Information Area.

The bit type is displayed here.

Comments are displayed here.

Set values for timers, counters, etc., are displayed here.

Input information and present values for timers, counters, etc., are displayed here.

Status Bar   The Status Bar displays information on the model of the connected ZEN, the connection status, operating status, and comments.

1	Connected ZEN model	Displays the model of the ZEN selected at startup.
2	Connection status	Indicates online or offline status.
3	Operating status	Indicates RUN or STOP (displayed only when online).
4	Comments	Displays operation explanations and online errors.

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SECTION 2
Creating Ladder Programs

This section describes how to create, save, edit, and print ladder programs.

2-1   Circuit Diagrams and Ladder Programs

In preparation for creating ladder programs, this section describes the relationship between relay circuits and ladder programs.

2-1-1   Ladder Programs

The ZEN uses ladder programs that appear like relay circuit diagrams.

Relay Circuit   **Ladder Program**
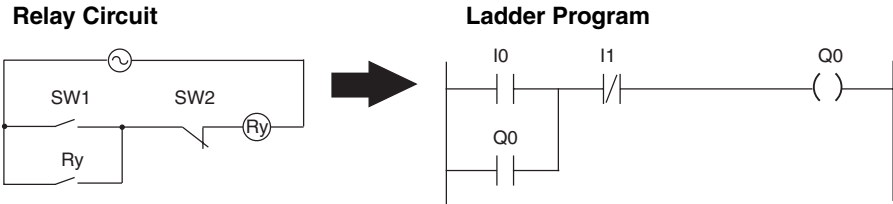
2-1-2   Basic Configuration of the ZEN Ladder Programs

The ZEN can execute up to 96 lines of programming, with 3 inputs and 1 output per line. Outputs can be specified at the right ends of lines only. Inputs cannot be specified after outputs.
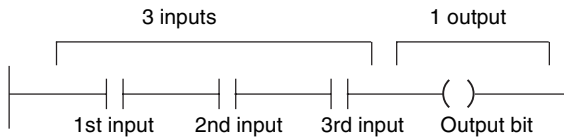
The ladder program inputs and outputs are displayed on the ZEN Support Software screen as shown below.

Ladder Diagram Display

Electrical Circuit Display
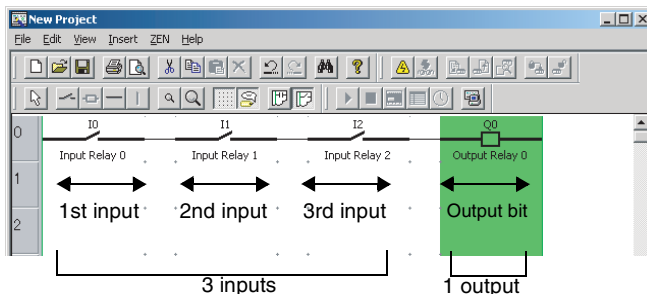
Note   On the ZEN Support Software displays, bits in the ZEN memory are called "relays," program input bits are called "contacts," and program output bits are called "coils."

2-1-3   Memory Areas

The following table shows the memory areas that can be used in the ZEN ladder programs.

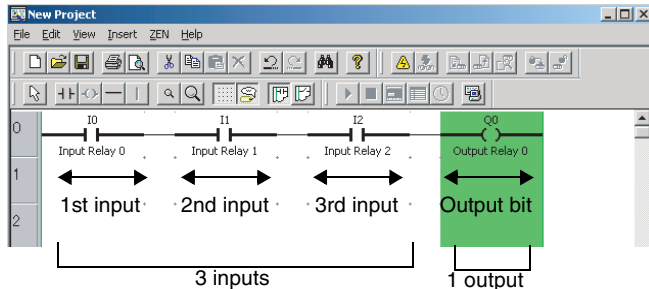| Symbol	Name	Function	Usable as input condition	Usable as output
I	CPU Unit input bits	Correspond to CPU Unit input terminals.	Yes	No
X	Expansion I/O Unit input bits	Correspond to Expansion I/O Unit input terminals.	Yes	No
B	Button input bits	Turn ON/OFF when operation buttons are pressed on the CPU Unit during ZEN operation.	Yes	No
A	Analog comparator bits	Compares present analog values to setting values and outputs the compared results for CPU Units with DC power supply inputs. (The analog input terminals correspond to I4 and I5 in 10-point CPU Units, and to Ia and Ib in 20-point CPU Units.)	Yes	No
P	Timer/counter comparator bits	Compares timer/counter present values and timer/counter present values and settings and outputs the compared results.	Yes	No
G	8-digit comparator bits	Compares 8-digit counter present value to preset value and outputs the compared results.	Yes	No
@	Weekly timers	Turns ON/OFF at the specified day/time	Yes	No

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Symbol	Name	Function		Usable as input condition	Usable as output
∗	Calendar timers	Turns ON/OFF between specified dates.		Yes	No
Q	CPU Unit output bits	Correspond to CPU Unit output terminals.	Can specify Normal output ([), Set (S)/ Reset (R), or Alternate (A) operation.	Yes	Yes
Y	Expansion I/O Unit output bits	Correspond to Expansion I/O Unit output terminals.		Yes	Yes
M	Work bits	Bits that can be used in the ladder program.		Yes	Yes
H	Holding bits	Bits that maintain ON/ OFF status at power interruptions and can be used in the ladder program.		Yes	Yes
T	Timers	Timers can be used for ON delay (X), OFF delay (■), One-shot pulse (O), Flashing pulse (F), or Twin (W) operation.		Yes	Yes
#	Holding timers	Timers that maintain the present value at power interruptions. (ON delay operation only.)		Yes	Yes
C	Counters	Incremental or decremental counters		Yes	Yes
F	8-digit Counter	Incremental or decremental counter with 8-digit capacity.		Yes	Yes
D	Display bits	Display character strings, month/ day, time, timer/counter present value, or analog conversion value on CPU Unit LCD display.		No	Yes

2-1-4 Memory Area Differences between Versions

The following table shows the differences between different models and different versions with respect to the memory areas that can be used.

Symbol	Name	Bit number (See note 1.)				
		ZEN-20C☐☐☐-☐-V2	**ZEN-10C☐☐☐-☐-V2**	**ZEN-20C☐☐☐-☐-V1**	**ZEN-10C☐☐☐-☐-V1**	**ZEN-10C☐☐☐-☐**
I	CPU Unit input bits	0 to b (12 bits)	0 to 5 (6 bits)	0 to b (12 bits)	0 to 5 (6 bits)	0 to 5 (6 bits)
Q	CPU Unit output bits	0 to 7 (8 bits)	0 to 3 (4 bits) (See note 5.)	0 to 7 (8 bits)	0 to 3 (4 bits)	0 to 3 (4 bits)
X	Expansion I/O Unit input bits (See note 2.)	0 to b (12 bits max.)				
Y	Expansion I/O Unit output bits (See note 2.)	0 to b (12 bits max.)				
M	Work bits	0 to f (16 bits)				
H	Holding bits	0 to f (16 bits)				
B	Button input bits (See note 3.)	0 to 7 (8 bits)				
A	Analog comparator bits (See note 4.)	0 to 3 (4 bits)				
P	Timer/counter comparator bits	0 to f (16 bits)				
T	Timers	0 to f (16 timers)				0 to 7 (8 timers)
#	Holding timers	0 to 7 (8 timers)				0 to 3 (4 timers)
C	Counters	0 to f (16 counters)				0 to 7 (8 counters)
@	Weekly timers (See note 3.)	0 to f (16 timers)				0 to 7 (8 timers)
∗	Calendar timers (See note 3.)	0 to f (16 timers)				0 to 7 (8 timers)
D	Display bits (See note 3.)	0 to f (16 bits)				0 to 7 (8 bits)
F	8-digit counter	0 (1 counter)		---		
G	8-digit comparator bits	0 to 3 (4 bits)		---		

Note 1. Bit numbers are specified in hexadecimal (0,1,2,3.... 9, a, b,...e, f).

2. The bit numbers that can be used depend on the Expansion I/O Unit connection configuration.

3. Supported only by the LCD-type CPU Unit.

4. Supported only by the CPU Units with a DC power supply.

5. Three bits (0 to 2) for CPU Units with Communications.

2-2 Inputting Ladder Programs

This section describes how to input the following simple program using the ZEN Support Software.

Example Ladder Program
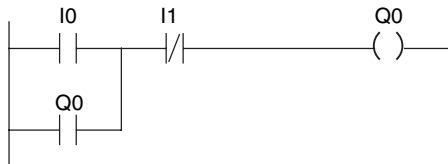
1,2,3... 1. If the ZEN Support Software has not been started, select ***Programs/Omron/ZEN Support Software/ZEN Support Software*** from the Windows Start Menu. Select ***Create a new program*** and press the **OK** Button.
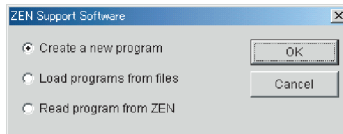
If the ZEN Support Software has already been started, click the **New** Button on the Toolbar. Alternatively, select ***File(F)/New(N)*** from the Menu Bar.

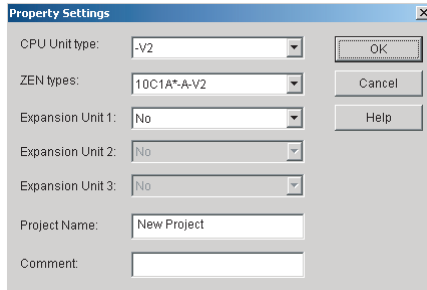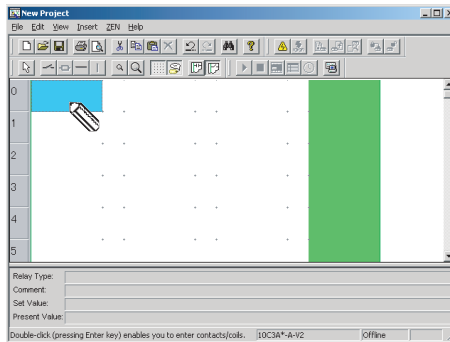2. The Property Settings Screen will be displayed. Enter the ZEN type, configuration (i.e., Expansion I/O Units), project name, and comment, and then click the **OK** Button.

3. An empty screen in ladder-view format will be displayed. Double-click the mouse on the position for the first input condition.

Note   Input positions for input and output bits can be set by using the mouse or cursor keys to move to the input or output position and then use any of the following methods.

- Press the **Enter** Key.

- Double-click.

- Click the **Insert Input** or **Insert Output** Button on the Toolbar.

- Select *Insert(I)/Contact (input bit)/Coil (output bit)* from the Menu Bar.

- Select *Edit(E)/Edit(E)* from the Menu Bar.

- Right-click and select *Edit.*

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4. The Edit Contact Dialog Box will be displayed. Specify the bit type, type of input, and bit number, and enter a comment if required.

Bit name: I

Input: Normally open

Bit number: 0

Comment: CPU Unit input 0 (Up to 31 characters can be entered.)

Comment color
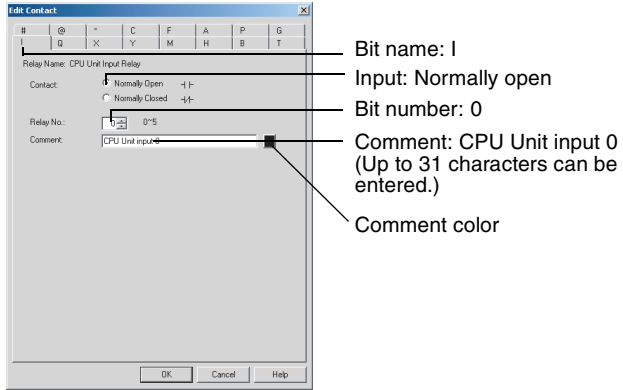
Note   <u>Parameter settings for timers and counters are set on the Edit Contact Dialog Box.</u>

5. Double-click the mouse on the next input position.

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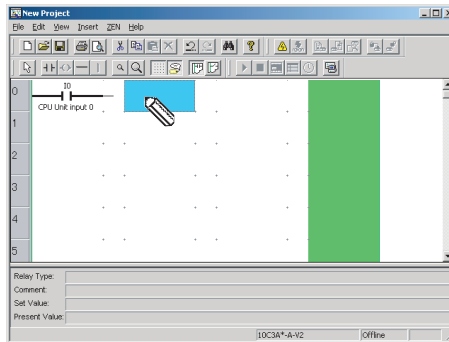
6. The Edit Input Dialog Box will be displayed again. Specify the bit type, type of input, bit number, and enter a comment if required, just as you did in step 4.

Bit name: I

Input: Normally closed

Bit number: 1

Comment: CPU Unit input 1
(Up to 31 characters can be entered.)

Comment color

7. Move the mouse to the output bit position and double-click the mouse.
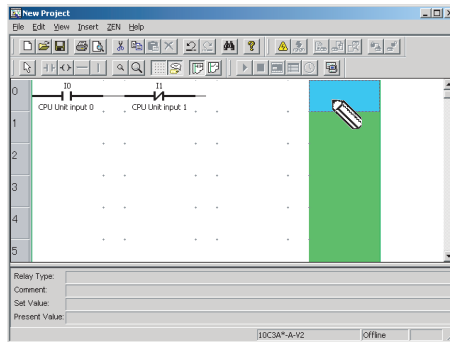
8. The Edit Output Dialog Box will be displayed. Specify the bit type, function, and bit number, and enter a comment if required.

Bit name: Q

Normal output ([), Set (S)/Reset (R), or Alternate (A): Normal output ([)

Bit number: 0

Comment: CPU Unit output 0 (Up to 31 characters can be entered.)

Comment color

9. Move the mouse to the input position on the next line and double-click.
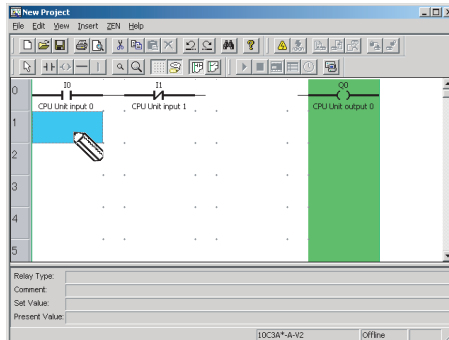
10. The Edit Input Dialog Box will be displayed. Specify the bit type, type of input, and bit number, and enter a comment if required, just as you did in step 4.
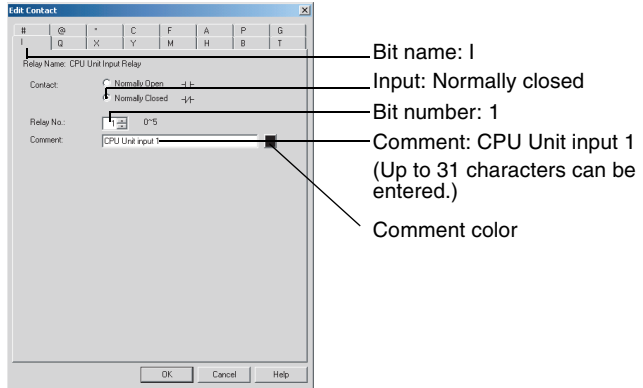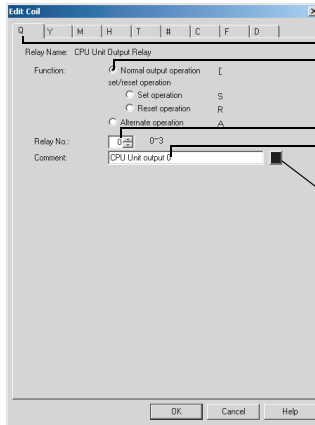

Bit name: Q
Input (Normally Open/Normally Closed): Normally Open
Bit number: 0
Comment: CPU Unit output 0 (Up to 31 characters can be entered.)

Comment color
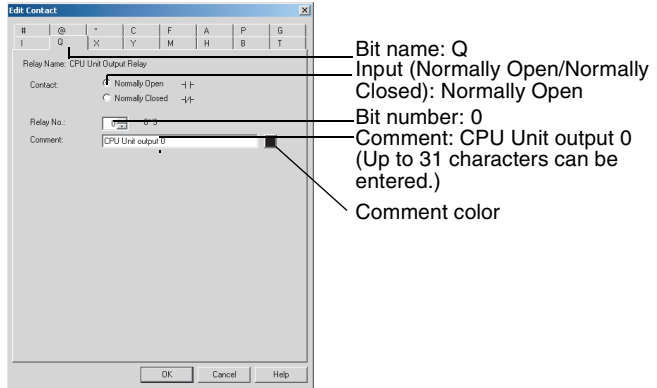
Note The comment will be automatically displayed for bit types and bit numbers that have comments.

11. Drag the mouse vertically to draw the connecting line.

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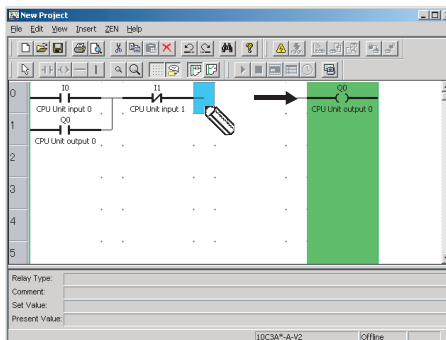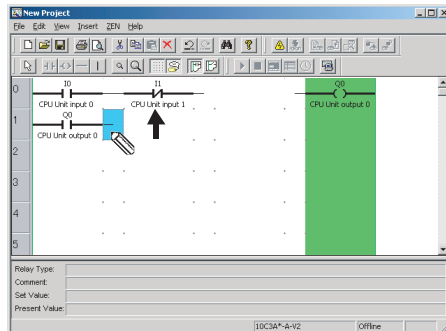
Note a) Horizontal connection lines can be drawn by using the mouse or Cursor Keys to move to the connection line position and then use any of the following methods.

- Pressing the − Key.
- Click the ***Insert/Horizontal*** Button on the Toolbar.
- Select ***Insert(I)/Horizontal(H)*** from the Menu Bar.

b) Vertical connection lines can also be drawn by using the mouse or Cursor Keys to move to the connection line position and then use any of the following methods:

- Press the **|** Key.
- Click the **Insert Vertical** Button on the Toolbar.
- Select ***Insert(I)/Vertical(V)*** from the Menu Bar. The vertical line will be drawn down from the cursor position.

12. The ladder program has now been completed.
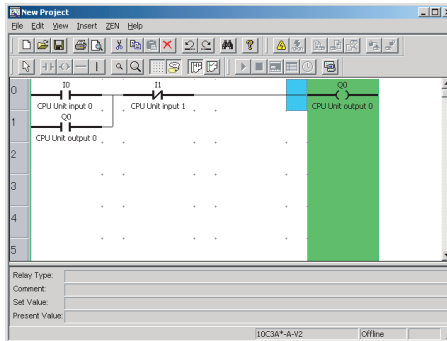
13. Double-click in the rung comment area to write rung comments for the ladder program. It is also possible to write comments by first using either the mouse or the cursor keys to move to the rung comment area, and then selecting ***Edit(E)/Edit rung comments***.

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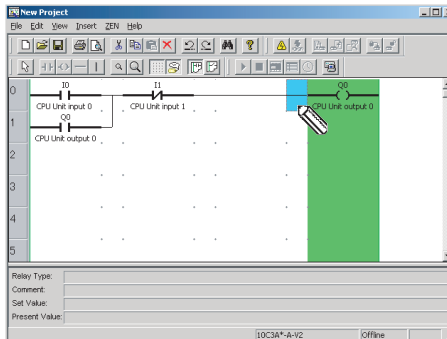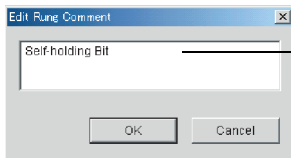
Enter rung comment.
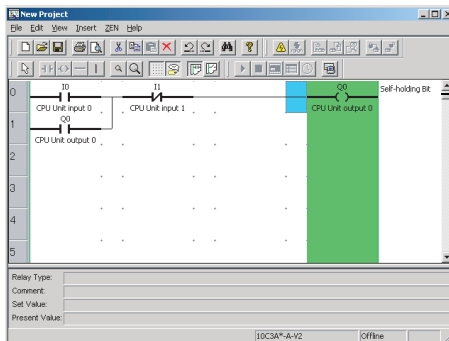
Rung comment
is displayed.

Note   Up to 63 characters can be entered for a rung comment.

2-3   Checking Ladder Programs

2-3-1   Program Check

Select *ZEN(Z)/Program Check* from the Menu Bar and check the program. The following dialog box will be displayed if the program check was completed without finding any errors.
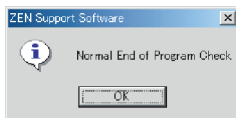
Note   For details on error messages during program checking, refer to *6-2 Program Check Errors and Warnings*.

2-3-2   Display Check

Select *ZEN(Z)/Display Check* from the Menu Bar, and then use the Display Check Dialog Box to check the display contents for the display bits D0 to Df that are used in the program. The contents of

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each are displayed in different colors, so overlapping displays can be
checked.
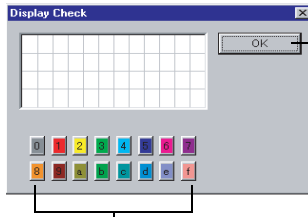
Click to close the Display
Check Dialog Box.

Click with the mouse to toggle between
displaying or not displaying the display
contents for each of the display bits D0 to Df.

2-4   Editing Ladder Programs

This section describes how to edit existing ladder programs.

2-4-1   Searching for Inputs and Outputs

Click the **Find** Button on the Toolbar or select *Edit(E)/Find(F)* from
the Menu Bar.

Finding by Rung Number   **Finding by Bit Type or Bit Number**
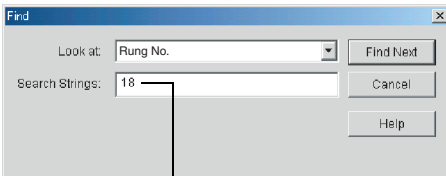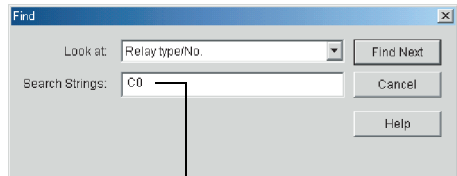
Rung numbers: 0 to 95   Bit type number

2-4-2   Replacing Inputs

To replace an input, select *Edit(E)/Replace* from the Menu Bar.
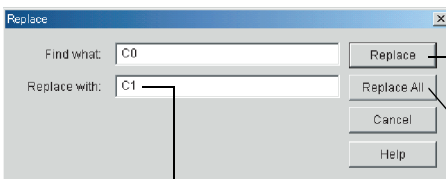
Replace the inputs while doing the search.
(As each input is found, confirm whether or
not it is to be replaced.)

Replace all of the inputs in the ladder program
(without confirming them individually).

Bit type number

2-4-3 Changing Inputs, Outputs, and Settings

Input positions for input and output bits can be changed by using the mouse or cursor keys to move to the input or output position and then use any of the following methods.

- Press the **Enter** Key.
- Double-click.
- Click the **Insert Input** or **Insert Output** Button on the Toolbar.
- Select *Insert(I)/Contact (input bit)/Coil (output bit)* from the Menu Bar.
- Select *Edit(E)/Edit(E)* from the Menu Bar.
- Right-click and select *Edit*.

1,2,3...   1. For this example, double-click CPU unit output Q0.
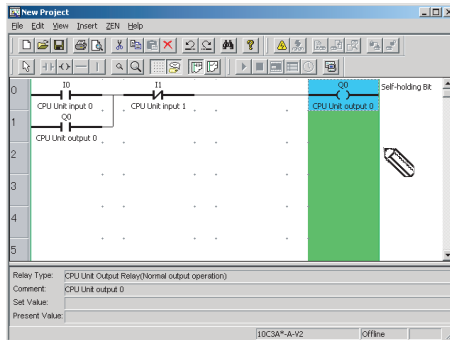
2. The Edit Output Dialog Box will be displayed.

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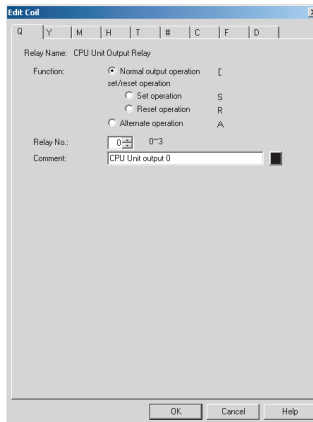
3. Change the bit type in the Edit Output Dialog Box from Q to M (holding bit), specify the function and bit number, and enter a comment if necessary.
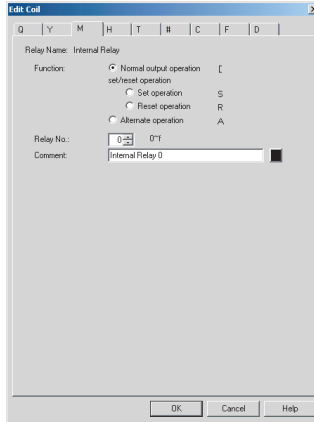
4. The output change has now been completed.
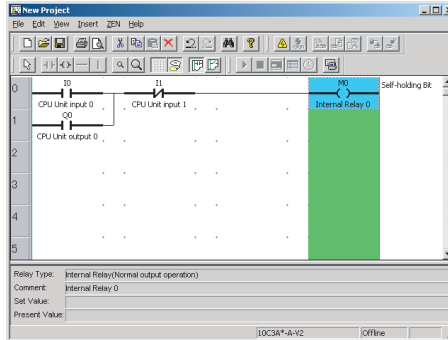
2-4-4   Inserting Inputs

Input positions for input and output bits can be inserted by using the mouse or cursor keys to move to the input or output position and then

- Press the **Enter** Key.
- Double-click.
- Click the **Insert Input** Button on the Toolbar.
- Select *Insert(I)/Contact (input bit)/Coil (output bit)* from the Menu Bar.
- Select *Edit(E)/Edit(E)* from the Menu Bar.
- Right-click and select *Edit*.

1,2,3...   1.   Double-click the ladder program connection line.
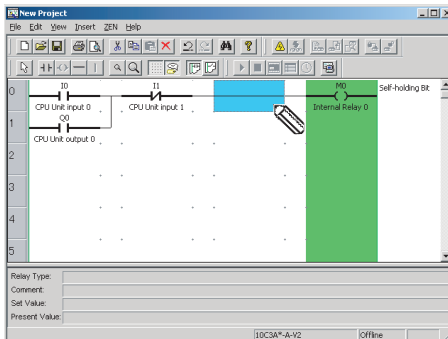
2.   Use the Edit Input Dialog Box to insert a input at the connection line.
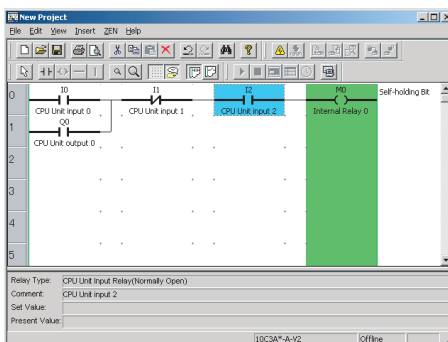
2-4-5   Deleting Inputs and Outputs

To delete an input or output, first use the mouse or the cursor keys to highlight the input or output that is to be deleted. Then use any of the following methods.

- Click the **Delete** Button in the Toolbar.
- Select *Edit(E)/Delete* from the Menu Bar.
- Right-click and select *Delete(D)*.
- Press the **Delete** Key on the keyboard.

1,2,3...   1.   Move the cursor to the input.

2. Click the **Delete** Button on the Toolbar.
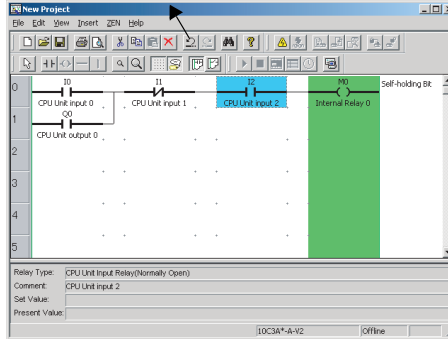
3. The input will be deleted.
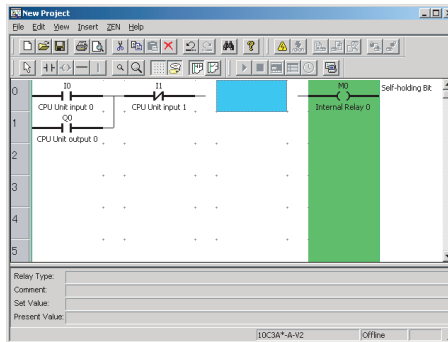
Note All inputs and outputs within a specified area can be deleted at once if the method to specify an area outlined under *2-4-8 Copying, Cutting, and Pasting Inputs and Outputs* is used.

2-4-6 Inserting Rungs

Using either the mouse or cursor keys, highlight the position where the rung is to be inserted, and then use any of the following methods to insert a blank rung.

- Select *Insert(I)/Rung(M)* from the Menu Bar.
- Right-click and select *Rung(L)/Insert(W)*.

1,2,3...   1.   Highlight the position and then select ***Insert(I)/Rung(M)*** from the
               Menu Bar.
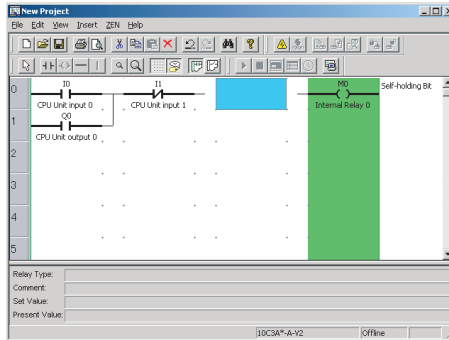
          2.   The blank rung will be inserted above the highlighted position.
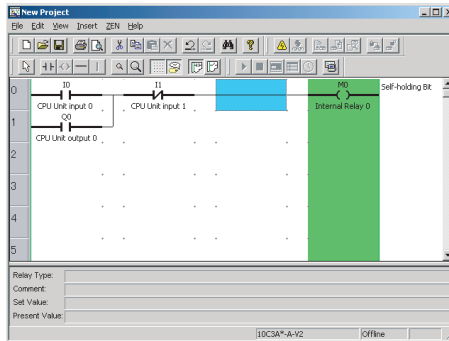
2-4-7   Editing Connection Lines

Use the following procedure to delete connection lines.

1,2,3...   1.   Drag the mouse along the existing line.

          2.   Use the mouse or Cursor Keys to move to the connection line and
               then use any of the following methods.

          • Click the **Delete** Button on the Toolbar.

          • Select ***Edit(E)/Delete*** from the Menu Bar.

          • Press the **Delete** Key on the keyboard.

Use the following procedure to create new connection lines.

1,2,3... 1. Drag the mouse from the desired position to create a new line.

2. Use the mouse or Cursor Keys to move to the desired position for the connection line and then use any of the following methods.

- Click the **Insert Horizontal** or **Insert Vertical** Button on the Toolbar.

- Select *Insert(I)/Horizontal(H)* or *Insert(I)/Vertical(V)* from the Menu Bar.

- Press the – or **I** Key on the keyboard.

2-4-8 Copying, Cutting, and Pasting Inputs and Outputs

Inputs and outputs within a specified range can be easily copied and moved if the cut, copy, or paste functions are used.

Copying, Cutting and Pasting Individual Objects

1,2,3... 1. Using the mouse or cursor keys, select the input or output that is to be copied or cut.
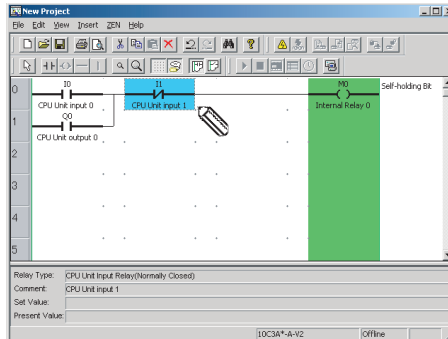
2. Use any of the following procedures for copying and moving.

When Copying

- Click the **Copy** Button on the Toolbar.
- Select *Edit(E)/Copy(C)* from the Menu Bar.
- Right-click and select *Copy*.

When Moving

- Click the **Cut** Button on the Toolbar.
- Select *Edit(E)/Cut(T)* from the Menu Bar.
- Right-click and select *Cut*.
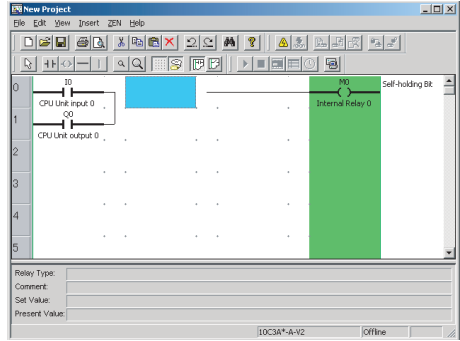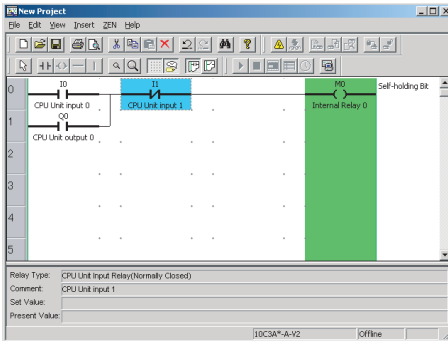
3. Any of the following methods can be used to paste inputs and outputs after moving the cursor to desired position with the mouse or cursor keys.

    - Click the **Paste** Button on the Toolbar.
    - Select *Edit(E)/Paste(P)* from the Menu Bar.
    - Right-click and select *Paste*.
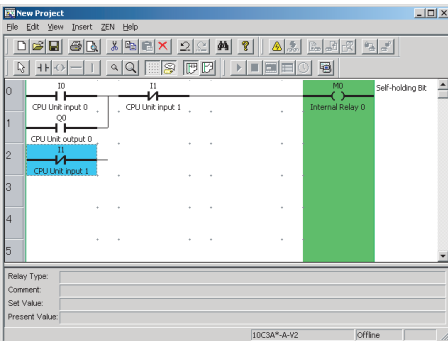
When Copying   **When Moving**
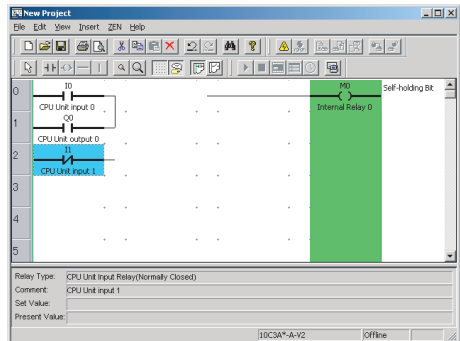
Note   Either the pencil or arrow cursor can be used to copy, cut, and paste individual objects.

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Copying, Cutting, and Pasting a Specified Range

1,2,3...   1. Click the **Select objects** Button on the Toolbar or select *Edit(E)/ Select Objects* from the Menu Bar.
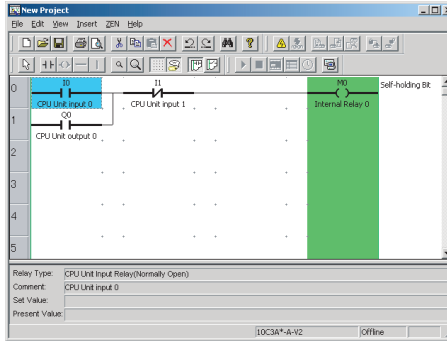
Note Connection lines cannot be drawn while the **Select objects** Button on the Toolbar is pressed. To return to normal program edit mode, click the **Select Objects** Button again or press the **Esc** Key.

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2.   Drag the mouse from the start of the range to the end of the range.
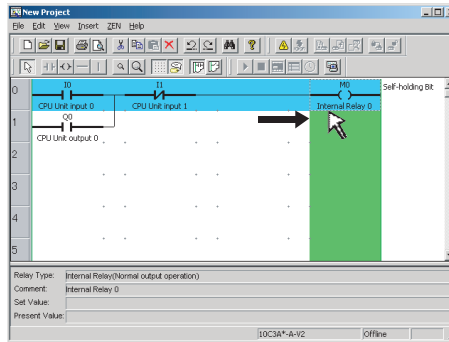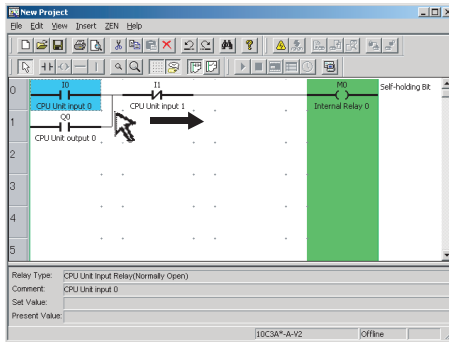
3.   Use any of the following procedures for copying and moving.

When Copying

- Click the **Copy** Button on the Toolbar.
- Select *Edit(E)/Copy(C)* from the Menu Bar.
- Right-click and select *Copy*.

When Moving

- Click the **Cut** Button on the Toolbar.
- Select *Edit(E)/Cut(T)* from the Menu Bar.
- Right-click and select *Cut*.
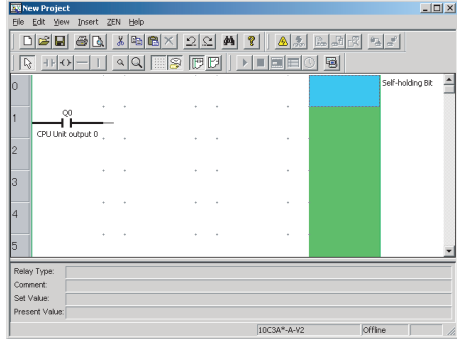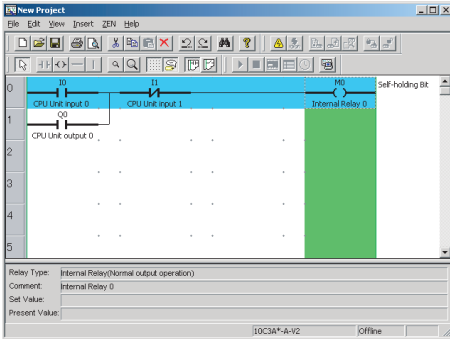
4. Any of the following methods can be used to paste inputs and outputs after moving the cursor to desired position with the mouse or cursor keys.

- Click the **Paste** Button on the Toolbar.
- Select *Edit(E)/Paste(P)* from the Menu Bar.
- Right-click and select *Paste*.
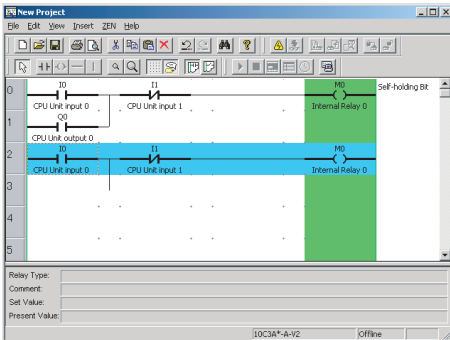
When Copying   **When Moving**
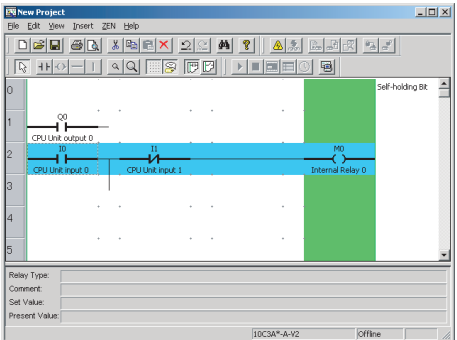
Note A program saved in a ladder program file can be pasted after copying the program and then starting up the ZEN Support Software in a separate window.

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2-4-9   Deleting Rungs

Using either the mouse or cursor keys, highlight the rung that is to be deleted. Then use any of the following methods to delete the rung.

• Select *Edit(E)/Delete Rung* from the Menu Bar.

• Right-click and select **Rung(L)/Delete(R)**.

1,2,3...   1.   Highlight the position and then select *Edit(E)/Delete Rung* from the Menu Bar.
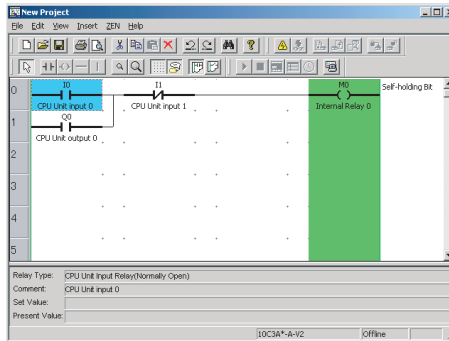
2.   The highlighted rung will be deleted, and the next rung will be moved up.
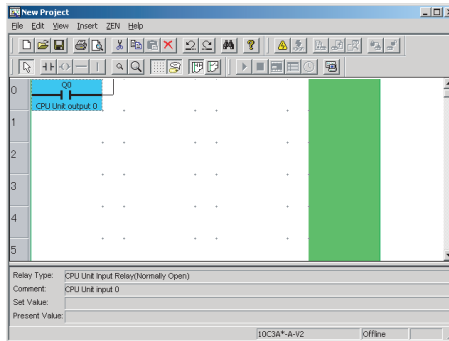
2-5   Editing Comments

The comment edit function is used to display or edit all I/O comments by bit type.

1,2,3...   1.   Select *Edit(E)/Edit Comments* from the Menu Bar.

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2.   Edit the comment in the Edit Comment Screen.
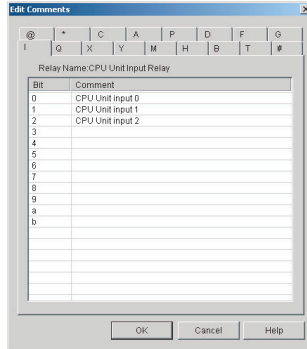
Note   1.   Programs are easier to understand and manage if actual I/O device names or names relating to functions are used in the I/O comments.

2.   Click the **Show Comments** Button on the Toolbar or select *View(V)/Show Symbol Comments* from the Menu Bar to display or not display the I/O comments in ladder view on the screen.

2-6   Saving Ladder Programs

This section describes how to save ladder programs to file.

2-6-1   Saving to File

1,2,3...   1.   Select *File(F)/Save As(A)* from the Menu Bar.

2.   The Save As Dialog Box will be displayed. Select the save destination and enter the file name, and then click the **Save** Button.
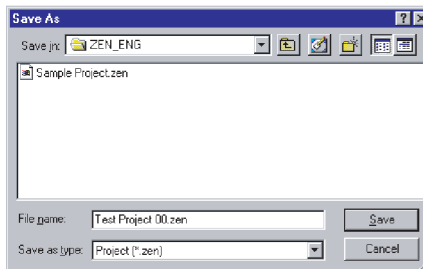
Note   1.   When saving existing ladder programs that have been edited since they were saved, you can also click the **Save** Button on the

Toolbar or select *File(F)/Save(S)* from the Menu Bar to overwrite the existing file.

2. The system settings and password set under *ZEN/Set Protection* will also be saved with the file.

2-6-2   Opening Saved Files

1,2,3...   1. Click the **Open** Button on the Toolbar or select *File(F)/Open(O)* from the Menu Bar to open saved files.

2. The Open File Dialog Box will be displayed. Specify the file location and file name and click the **Open** Button.
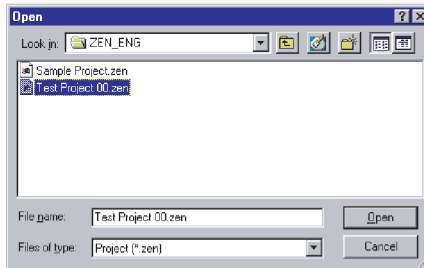
2-7   Printing Ladder Programs

2-7-1   Print Settings

This section describes the layout and heading settings that must be made before printing ladder programs.

1,2,3...   1. Select *File(F)/Print Setup(R)* from the Menu Bar.

2. The Print Settings Dialog Box will be displayed. Make the settings for each item.

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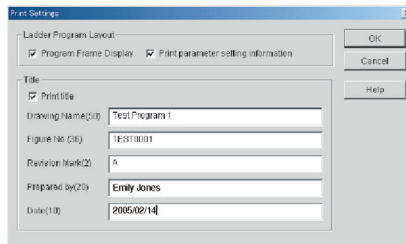
Setting	Explanation
Program frame display	Check this box to print the print frame.
Parameter settings information	Check this box to print the timer, counter, and other parameter settings. Information will be printed only for portions of the memory areas that are being used.
Print title	Check this box to print the title.
Drawing name	Enter the drawing name.
Figure No.	Enter the drawing number.
Revision mark	Enter the revision mark.
Prepared by	Enter the name of the person who wrote the program.
Date	Enter the date the program was written.

3. Click the **OK** Button to save the settings as the print settings for the ZEN Support Software. Click the **Cancel** Button to discard the settings.

   Note a) To specify whether I/O comments are to be printed, either click the **Show Comments** Button on the Toolbar or select *View(V)/Show Symbol Comments* from the Menu Bar.

   b) To specify whether a ladder diagram or electrical circuit diagram is to be printed, either click the **Ladder rung diagram** Button or the **Electrical circuit diagram** Button on the Toolbar or else select *View(V)/Circuit display method/Ladder rung diagram* or *Electrical circuit diagram* from the Menu Bar.

2-7-2 Print Preview

1,2,3... 1. Click the **Print Preview** Button on the Toolbar or select *File(F)/ Print Preview(V)* from the Menu Bar to check the print layout.

2. The Print Preview Screen will be displayed.
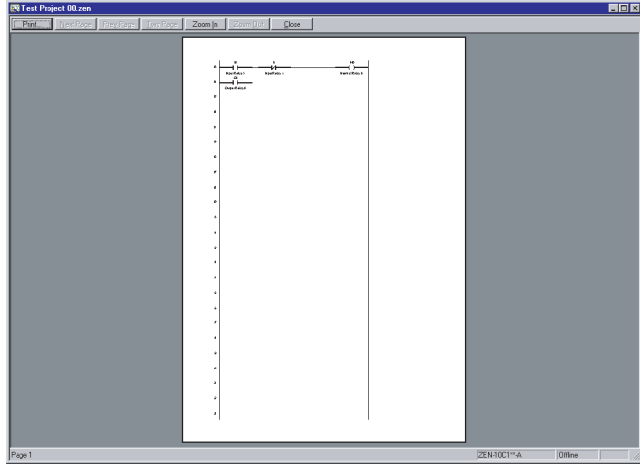
2-7-3   Printing

1,2,3...   1. Click the **Print** Button on the Toolbar or select *File(F)/Print(P)* from the Menu Bar.

2. The Print Dialog Box will be displayed. Make settings for each item and click the **OK** Button.
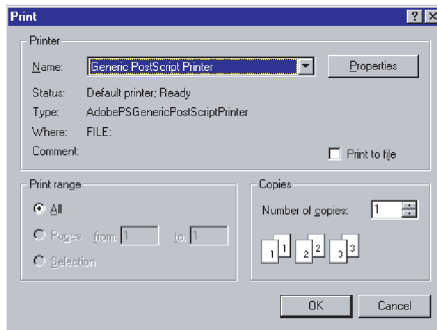
SECTION 3
Transferring and Monitoring Programs

This section describes how to connect to the ZEN and how to transfer programs between the ZEN and the ZEN Support Software.

3-1   Connecting the ZEN and Communications Settings

3-1-1   Connecting to the ZEN

Use a ZEN-CIF01 Computer Connecting Cable to connect the ZEN and a serial port (COM port) of the computer.

ZEN-CIF01 Computer Connecting Cable
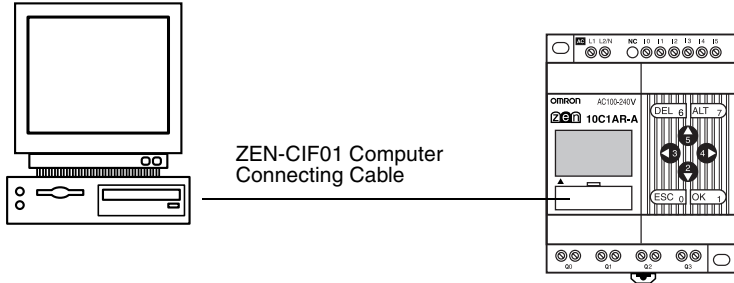
Note The connector on the computer side of the ZEN-CIF01 Computer Connecting Cable is a 9-pin D-sub connector. When connecting to a computer that does not have a serial port, connect an RS-232C-USB Conversion Cable to the ZEN-CIF01 Computer Connecting Cable. An OMRON CS1W-CIF31 Conversion Cable can be used (cable length: 50 cm).

3-1-2   Communications Settings for Connecting to the ZEN

Communications settings must be made in the ZEN Support
Software before commencing communications with the ZEN.

1,2,3...   1. Select ***File(F)/Communications Settings (Computer ↔ ZEN)***
from the Menu Bar.

2. The Communications Settings Dialog Box will be displayed. Make
the settings for each item.

a)   When using a -V2 CPU Unit
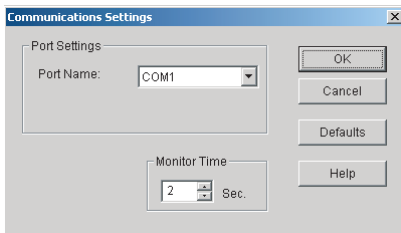
Setting	Details	Default
Port name	Select a COM port that can be connected to the personal computer.	COM 1
Monitor time	Specify the communications monitor time between 1 and 30 s.	2

b)   When using a -V1 or earlier CPU Unit.
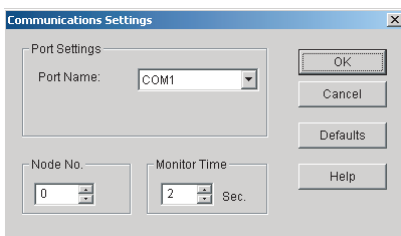
Setting	Details	Default
Port name	Select a COM port that can be connected to the personal computer.	COM 1
Node No.	Use 0 for the node number. If the node number is different from the node number of the ZEN, communications will not be possible.	0
Monitor time	Specify the communications monitor time between 1 and 30 s.	2

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Specifications Changes from Version 3.0 Support Software
Modem-related settings (Modem, Local information, Connect to)
that could not be used have been deleted.

3. Click the **OK** Button to save the settings in the project.
    Click the **Cancel** Button to discard the settings.
    Click the **Defaults** Button to return to the default settings.

3-2   Connecting Online

Check communications with the ZEN before transferring or verifying
programs. Connect the computer to the ZEN and perform the check
operation with the project file open.

1,2,3... 1. Select ***File(F)/Properties*** from the Menu Bar and make the ZEN
    model and Expansion I/O Units 1 to 3 settings in the Properties
    Dialog Box to match the system configuration of the ZEN to be
    connected online.

2. Turn OFF the ZEN power, connect the ZEN to the computer with
    the Computer Connecting Cable, then turn ON the ZEN power
    again.
    When using a ZEN that supports external communications, a
    confirmation message that says, "RS-485 will stop. Y/N" will be
    displayed on the ZEN when you turn ON the power. Select ***Yes***,
    then click the **OK** Button

3. Open the project file. Click the **Go Online** Button on the Toolbar
    or select ***ZEN(Z)/Go Online/Offline(W)*** from the Menu Bar. A
    confirmation dialog box will be displayed. Click the **OK** Button.
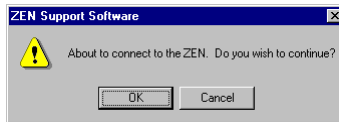
4. Check that the Status Bar display has changed from *Offline* to
    Online. The background color for the ladder view area will change
    to gray when the ZEN is online.

Click the **Go Online** Button on the Toolbar again or select
ZEN(Z)/Go Online/Go Offline(W) from the Menu Bar. The
display on the Status Bar will return from *Online* to *Offline*. The
background color for the ladder view area will change back to
white.

Note   a) Ladder programs cannot be edited when online. Always go
                   offline before creating or editing ladder programs.

           b) Select ***ZEN/ZEN Information(S)*** from the Menu Bar while
                   online to obtain information about the connected ZEN.
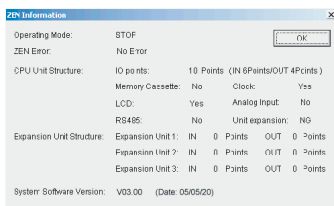
3-3   Transferring Programs to the ZEN

This section describes how to transfer ladder programs created using
the ZEN Support Software to the ZEN.

The ZEN must be connected and online and the project file opened
before the program transfer operation can be executed.

Precaution   Perform adequate safety checks before transferring the program to
the ZEN.

1,2,3...   1. Click the **Transfer to ZEN** Button on the Toolbar or select ***ZEN(Z)/
Transfer(R)/Transfer to ZEN(T)*** from the Menu Bar. The Transfer
to ZEN Dialog Box will be displayed. Click the **OK** Button to
transfer the program to the ZEN. Click the **Cancel** Button to
cancel the transfer.
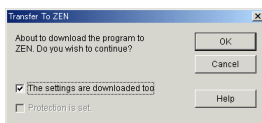
Settings Details

  • Select *The settings are downloaded too* in the Transfer to ZEN
    Dialog Box to download the ZEN settings in the ZEN Support
    Software at the same time.
    Refer to *4-1 ZEN Settings* for information on the various ZEN
    settings.

  • Select *Protection is set* in the Transfer to ZEN Dialog Box if the
    ZEN is to be protected by the password set in the ZEN Support
    Software. Do not select this option if no password has been set.
    Refer to *4-2 Setting a Password* for information on setting
    passwords.

Note   1. With version 4.0 or higher, it is possible to transfer programs to the
               ZEN even if the Expansion I/O Units are not connected, so long

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as the CPU Unit is the same type as that specified in the property settings of the Support Software.
When going online, a confirmation message, such as the example shown below, will be displayed. Select "Y" (yes) to connect, and then perform the transfer operation.

"ZEN model in properties settings (10C1A*-A-V2) does not match model being connected (10C1A*-A-V2+8E1**). Go online? Y/N"

2. Refer to *6-2 Program Check Errors and Warnings* for information on error messages that occur during transfer from the computer to the ZEN.

3-4   Transferring Programs from the ZEN

This section describes how to transfer the ZEN ladder programs to the ZEN Support Software.

The ZEN must be connected and online and the project file opened before the program transfer operation can be executed.

1,2,3...   1.   Click the **Transfer From ZEN** Button on the Toolbar or select ***ZEN(Z)/Transfer(R)/Transfer from ZEN(T)*** from the Menu Bar. The Transfer From ZEN Dialog Box will be displayed. Click the **OK** Button to transfer the program from the ZEN. Click the **Cancel** Button to cancel the transfer.
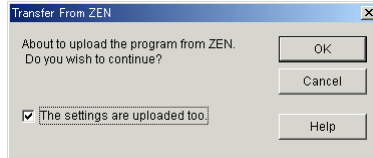
Settings Details
Select *The settings are uploaded too* in the Transfer From ZEN Dialog Box to upload the ZEN settings at the same time.

Note   a) If a password has been set for the previously opened project file (see *4-2 Setting a Password*), the password will be cleared, and a comfirmation dialog box will be displayed.
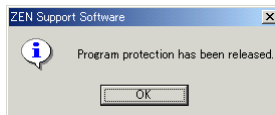
b) Refer to *6-2 Program Check Errors and Warnings* for information on error messages that occur during transfer from the ZEN to the computer.

3-5   Verifying Programs with the ZEN

This section describes how to compare the programs in the ZEN and the ZEN Support Software to verify that they are the same.

The ZEN must be connected and online and the project file opened before the program verification operation can be executed.

1,2,3...   1.   Click the **Compare with ZEN** Button on the Toolbar or select **ZEN(Z)/Transfer(R)/Compare with ZEN(C)** from the Menu Bar. The Compare With ZEN Dialog Box will be displayed. Click the **OK** Button to compare the ZEN and the ZEN Support Software programs. Click the **Cancel** Button to cancel the verification.
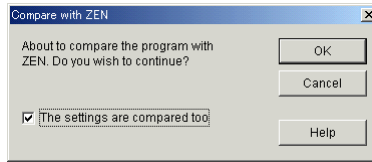
Settings Details
Select *The settings are compared too* in the Compare With ZEN Dialog Box to compare the ZEN and the ZEN Support Software settings at the same time.

2.   A confirmation dialog box will be displayed if the verification has been completed normally.

When Programs Are the Same
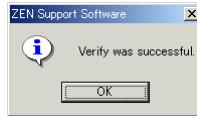
When Programs Are Different
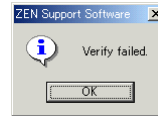
Note   Refer to *6-2 Program Check Errors and Warnings* for information on error messages that occur during verification.

3-6   Operating and Stopping the ZEN

This section describes how to operate and stop the ZEN from the ZEN Support Software.

The ZEN must be connected and online and the project file opened before these operations can be executed.

Precaution   Perform adequate safety checks before changing the operating mode (RUN/STOP).

1,2,3...   1.   Select ***ZEN(Z)/Change operating mode(M)/RUN(R)*** from the Menu Bar.

2.   Check that the Status Bar display changes from *STOP* to *RUN*.

Error		ZEN-10C1**-A	Online	STOP
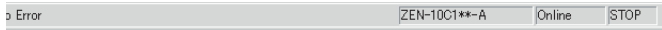
3.   Select ***ZEN(Z)/Change operating mode(M)/STOP(S)*** from the Menu Bar to stop ZEN operation. The Status Bar display will change from *RUN* to *STOP*.

Error		ZEN-10C1**-A	Online	STOP

3-7   Monitoring Programs

3-7-1   Monitor

This section describes how to monitor programs being executed by the ZEN.

The ZEN must be connected and online and the project file opened before the programs can be monitored. The ZEN and the ZEN Support Software programs must be the same before programs can be monitored. Use the procedures outlined under *3-3 Transferring Programs to the ZEN* (page 45), *3-4 Transferring Programs from the ZEN* (page 46), and *3-5 Verifying Programs with the ZEN* (page 47) to transfer and verify the programs.

1,2,3...   1.   Use the procedure outlined under *3-6 Operating and Stopping the ZEN* (page 48) to start ZEN operation. Check that the Status Bar display changes from *STOP* to *RUN*.

Error		ZEN-10C1**-A	Online	STOP

2.   Click the **Toggle Monitoring** Button on the Toolbar or select ***ZEN(Z)/Monitor(O)*** from the Menu Bar.

3. When the mode is changed to MONITOR, the closed circuits of the ZEN ladder program are highlighted in green.
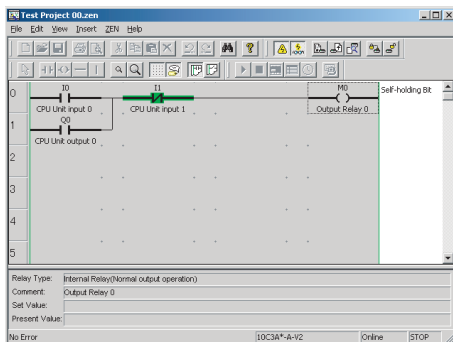
3-7-2 Displaying Present Values

Present values, the ON/OFF status of inputs, etc., can be displayed during monitoring of programs being executed by the ZEN.

During monitoring, moving the mouse or cursor to a timer/counter or other output will cause the present value to be displayed in the Status Bar.
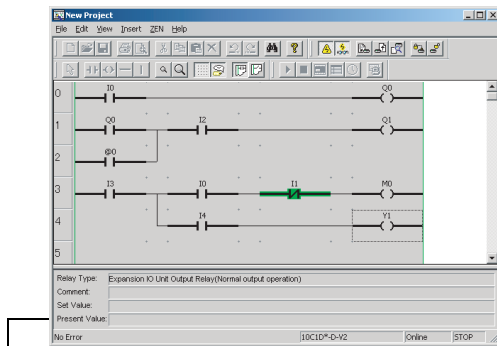
Present value display

3-7-3 Changing Settings Online

Set values can be changed while connected to the ZEN online.

1,2,3...   1. While online, use either the mouse or the cursor keys to highlight the output that is to be changed. Then use any of the following methods to change the setting.

   • Press the **Enter** Key or double-click.

   • Select *Edit(E)/Edit(E)* from the Menu Bar.

• Right-click and select *Edit(E)*.
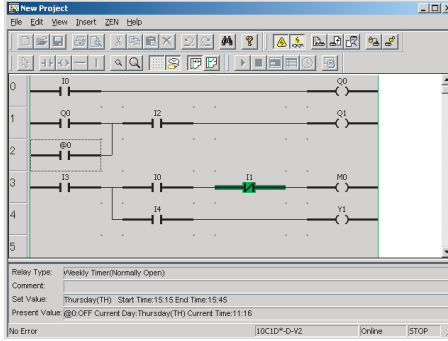
2. The Edit Dialog Box will be displayed. When the settings are changed and the dialog box closed, the changes will be transferred to the ZEN and reflected there.
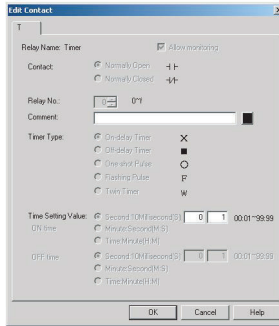
Note The following table shows the settings that can be changed online.

Bit type	Content of change
Timer (T)	Time setting
Holding timer (#)	Time setting
Counter (C)	Counter setting
8-digit counter (F) (See note.)	Counter setting
Weekly timer (@)	Start/stop day of week, time Pulse output time (See note.)
Calendar timer (*)	Start/stop months, days
Analog comparator (A)	Constants, operators

Note The 8-digit counters and pulse output time can be used when using a -V2 CPU Unit.

3-8   Setting and Resetting Inputs

This section describes how to set (turn ON) and reset (turn OFF) the ZEN bits from the ZEN Support Software.

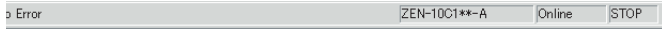The ZEN must be connected and online and the project file opened before inputs can be set or reset. Also, the ZEN and the ZEN Support Software programs must be the same before inputs can be set or reset. Use the procedures outlined under *3-3 Transferring Programs to the ZEN* (page 45), *3-4 Transferring Programs from the ZEN* (page 46), and *3-5 Verifying Programs with the ZEN* (page 47) to transfer and verify the programs.

Precaution   Confirm safety before turning relays ON or OFF.

1,2,3...   1.   Use the procedure outlined under *3-6 Operating and Stopping the ZEN* to start ZEN operation. Check that the Status Bar display changes from *STOP* to *RUN*.

| ₀ Error | | ZEN-10C1**-A | Online | STOP |

2.   Use the procedure outlined under *3-7 Monitoring Programs* to change to MONITOR mode.

3.   Use the mouse or cursor keys to move to the input that is to be set or reset, and then perform either of the following operations:

• Select **ZEN(Z)/Set/Reset Operation** and then either **Set Operation(W)** or **Reset Operation(F)** from the Menu Bar.

• Right-click and then select **Set/Reset Operation** and then either **Set Operation(W) or Reset Operation(F)**.

Note   The following table shows the inputs that can be set or reset.

Bit type	Comments
CPU Unit input bits (I)	Input terminal ON/OFF status has priority.
CPU Unit output bits (Q)	Set/reset possible for inputs only. (Not possible for outputs.)
Expansion I/O Unit input bits (X)	Input terminal ON/OFF status has priority.
Expansion I/O Unit output bits (Y)	Set/reset possible for inputs only. (Not possible for outputs.)
Work bits (M)	
Holding bits (H)	

3-9 Clearing Errors

If an error occurs, use the following procedure to clear the error and then remove the cause of the error.

The ZEN must be connected and online for this operation.

1,2,3...   1. Select ***ZEN(Z)/Error Clear*** from the Menu Bar to clear the error.

2. Repeat this step to clear multiple errors.

Note   a) Refer to *Section 6 Troubleshooting* in the *ZEN Operation Manual (Z183)* for information on ZEN errors.

b) ZEN errors that occur while online will be displayed in the Status Bar.

No Error		ZEN-10C1**-A	Online	STOP

Error display

SECTION 4
System Settings

This section describes the ZEN system settings, how to set passwords to protect the ZEN ladder programs, and how to clear the ZEN memory.

4-1 ZEN Settings

This section describes how to change the ZEN settings from the ZEN Support Software.

4-1-1 Settings

1,2,3...　1. Select ***ZEN(Z)/Set Protection(E)/Settings(S)*** from the Menu Bar.

2. The Settings Dialog Box will be displayed. Make the settings for each item.

   a)　When Using a -V2 CPU Unit
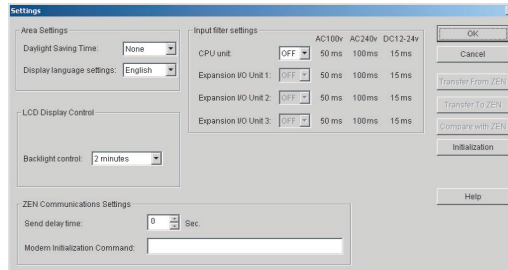
Setting		Details	Default
Daylight saving time (See note a.)		None, manual, EU Type, US Type, AU Type, NZ Type	None
Display language (See note a.)		English, Japanese, German, French, Italian, Spanish	English
Backlight control (See note a.)		2 min, 10 min, 30 min, always	2 min
Input filter	CPU Unit	OFF: No input filter ON: With input filter	OFF
	Expansion I/O Unit 1 (See note b.)		
	Expansion I/O Unit 2 (See note b.)		
	Expansion I/O Unit 3 (See note b.)		
Send delay time (See note c.)		Send delay time for the initialization command to the modem set in the ZEN	0
Initialize modem (See note c.)		Initializes the modem set in the ZEN.	---

Note　a) The display language and background settings can be used for LCD-type CPU Units.

b) Input filters can be set only for Expansion I/O Units that exist in the system configuration.

c) Do not change these settings. They are for future functional expansions.(These settings are not displayed for models with communications.)

b)   When Using a -V1 or Earlier CPU Unit
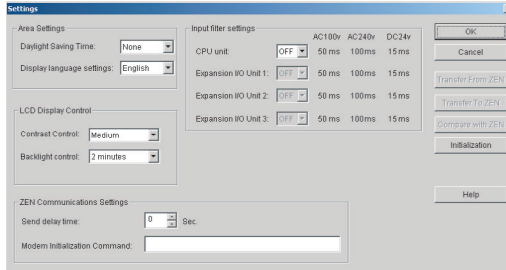
Setting		Details	Default
Daylight saving time (See note a.)		None, manually, EU Type, US Type	None
Display language (See note a.)		English, Japanese, German, French, Italian, Spanish	English
Contrast control (See note a.)		Light, Medium light, Medium, Medium dark, Dark	
Backlight control (See note a.)		2 min, 10 min, 30 min, always	2 min
Input filter	CPU Unit	OFF: No input filter ON: With input filter	OFF
	Expansion I/O Unit 1 (See note b.)		
	Expansion I/O Unit 2 (See note b.)		
	Expansion I/O Unit 3 (See note b.)		
Send delay time (See note c.)		Send delay time for the initialization command to the modem set in the ZEN	0
Initialize modem (See note c.)		Initializes the modem set in the ZEN.	---

Note a) The display language and background settings can be used for LCD-type CPU Units.

b) Input filters can be set only for Expansion I/O Units that exist in the system configuration.

c) Do not change these settings. They are for future functional expansions.

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3. Click the **OK** Button to save the settings.
    Click the **Cancel** Button to discard the settings.
    Click the **Initialization** Button to return to the default settings.

4. Settings can be sent between the ZEN and the ZEN Support
    Software if the ZEN is online.
    Click the **Transfer to ZEN** Button to transfer the settings to the
    ZEN or the **Transfer from ZEN** Button to transfer the settings
    from the ZEN to the ZEN Support Software.
    Press the **Compare with ZEN** Button to compare the settings on
    the computer and the ZEN.

4-1-2 Time Settings

With the LCD-type CPU Units, time and date settings are preformed
online.

1,2,3...   1. Select ***ZEN(Z)/Set Protection(E)/Time Setting(T)*** from the
    Menu Bar.

2. The Time Settings Dialog Box will be displayed. Set the date and
    time for the ZEN internal clock.
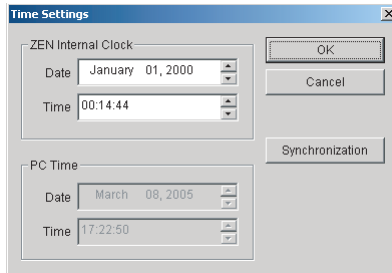
Settings		Details
ZEN internal clock	Date	Edit the ZEN date. (Date read from the ZEN at startup or same date as computer)
	Time	Edit the ZEN time. (Time read from the ZEN at startup or same time as computer)
PC time	Date	Displays the computer date.
	Time	Displays the computer time.

Note   To set the date and time display styles, select ***Settings/Control
Panel/Regional Settings*** from the ***Start*** menu. Select ***Date*** to
set a date style or ***Time*** to set a time style (when using Windows
2000).

3. Click the **OK** Button to send the settings to the ZEN.
    Click the **Cancel** Button to discard the settings.
    Click the **Synchronization** Button to use the computer date and
    time as the ZEN date and time. When the Synchronization Button
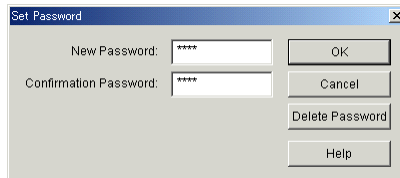
is clicked, the computer date and time will be shown under the ZEN date and time on the screen, but these settings will not be sent to the ZEN. To transfer the computer date and time to the ZEN, click the **Synchronization** Button and then click the **OK** Button.

4-2   Setting a Password

This section describes how to set a password for the ZEN. This password is used to set and clear protection for the ZEN programs.

Note   1.   Refer to *4-3 Protecting Programs* for information on how to set and clear ZEN program protection.

2.   When setting a password, be sure to record it.
If you forget the password, it will not be possible to set or clear protection for the ZEN program.

1,2,3...   1.   Select ***ZEN(Z)/Set Protection(E)/Set Password(T)*** from the Menu Bar.

2.   The Set Password Dialog Box will be displayed. Enter the password and confirm the password.

The password can be only 4 digits long.

3.   Click the **OK** Button to set the password as entered. Click the **Cancel** Button to clear the entered password. Click the **Delete Password** Button to delete an existing password.

4-3 Protecting Programs

This section describes how to protect the ZEN programs from intentional or unintentional alteration by other users. Protected ZEN programs cannot be altered until the protection is removed and the protection can only be removed if the password is input correctly. For these reasons, care must be taken when using program protection.

The ZEN must be connected and online before program protection can be executed.

Note   a)   Refer to *4-2 Setting a Password* for information on how to set and change passwords.

b)   If the password is forgotten, it can only be cleared by performing the ZEN's memory all clear operation (see *4-4 Clearing the ZEN Memory*).

4-3-1 Setting Program Protection

1,2,3...   1.   Click the **Set Protection** Button on the Toolbar or select ***ZEN(Z)/Protect(P)/Set(S)*** from the Menu Bar. The Set Protection Dialog Box will be displayed.

2.   Enter the 4-digit password set under the password settings.
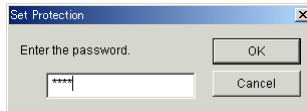
3.   Once the above procedure has been completed, programs cannot be transferred to or from the ZEN or compared with the ZEN until the protection is removed.

4-3-2 Removing Program Protection

1,2,3...   1.   Click the **Release Protection** Button on the Toolbar or select ***ZEN(Z)/Protect(P)/Release(L)*** from the Menu Bar. The Release Protection Dialog Box will be displayed.

2.   Enter the 4-digit password set under the password settings.
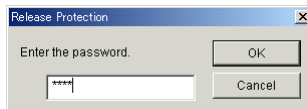
Programs can now be transferred to or from the ZEN or compared with the ZEN.

Note   Refer to *6-2 Program Check Errors and Warnings* for information on any error messages that appear during setting or removal of program protection.

4-4   Clearing the ZEN Memory

This section describes how to clear the ZEN memory from the ZEN Support Software. The ZEN must be connected and online to perform this operation.

ZEN memory data	Status after memory cleared
Ladder programs (including parameter settings information)	Ladder program code is completely cleared. No ladder programming will remain.
Password settings	The password will be cleared and program protection removed.
I/O bits	All inputs will be reset (turned OFF) and holding timer and counter present values cleared to 0.

1,2,3...   1.   Select *ZEN(Z)/All Clear within ZEN* from the Menu Bar.
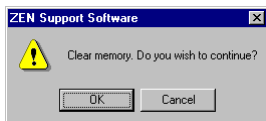
2.   Click the **OK** Button to clear all memory in the ZEN. Click the **Cancel** Button to cancel the all clear operation.

4-5   RS-485 Communications Settings

The ZEN-10C4□R-□-V2 is equipped with an RS-485 communications output, supporting external communications using the CompoWay/F communications protocol.

1,2,3...   1.   Select ***ZEN(Z)/Set Protection(E)/Settings(S)*** from the Menu Bar.

2.   The Settings Dialog Box will be displayed. Click the **RS-485** Button.

3.   The RS-485 Communications Settings Dialog Box will be displayed. Set each item.

Settings	Details	Default
Data Length	7 or 8 bits	7
Stop Bits	1 or 2 bits	2
Parity	None, even, or odd	Even
Baud Rate	4800, 9600, or 19200 bps	9,600
Node No.	Specify a node number between 0 and 99. Supports broadcasting (node No.: XX).	1

4.   To save the settings click the **OK** Button. To clear the settings click the **Cancel** Button. Click the **Initialize** Button to return the settings to the default values.

SECTION 5
Simulation Function

This section describes the simulation function and corresponding displays.

5-1 Starting and Stopping the Simulation Function

A ladder program created with the Support Software can be run by the Support Software without transferring it to the ZEN.

1,2,3...   1. Display the ladder program for which operation is to be simulated and then click the **Start/Stop Simulator** Button on the Toolbar or select ***ZEN(Z)/Start/Stop Simulator*** from the Menu Bar.
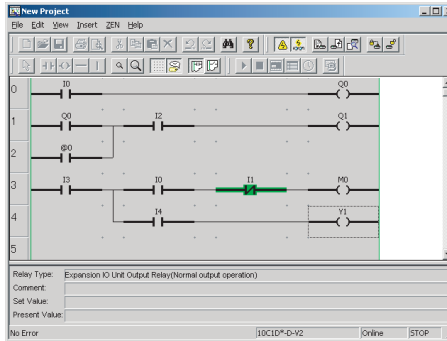
> Note   Set values can be changed during simulation. For details, refer to Changing Settings Online in *3-7 Monitoring Programs*.

2. When the simulator is started, the background color will change to yellow and the **RUN**, **STOP**, **ZEN Image Display**, **Present Value List Display**, **Clock Display**, and **Start/Stop Simulator** Buttons on the Toolbar will be enabled. Also, depending on the content of the ladder program, the ZEN Image Window, the Present Value List Window, and the Clock Window will be opened.

3. To start the simulation, click the **RUN** Button on the Toolbar. To stop the simulation, click the **STOP** Button on the Toolbar.

4. To stop the simulator, click the **Start/Stop Simulator** Button on the Toolbar or select ***ZEN(Z)/Start/Stop Simulator*** from the Menu Bar. The background color for the simulator view area will change back to white.

Toolbar Button Functions

▶	RUN	Executes the ladder program.
■	STOP	Stops the ladder program execution.
▦	ZEN Image Display	Specifies whether or not the ZEN Image Window will be displayed.

	Present Value List Display	Specifies whether or not the Present Value List Window will be displayed.
	Clock Display	Specifies whether or not the Clock Window will be displayed.
	Start/Stop Simulator	Starts and stops the Simulator.

5-2 ZEN Image Display

CPU Unit and Expansion I/O Unit images are displayed according to the configuration in the property settings, and input switches and lamps are allocated to the I/O bits used in the ladder program.
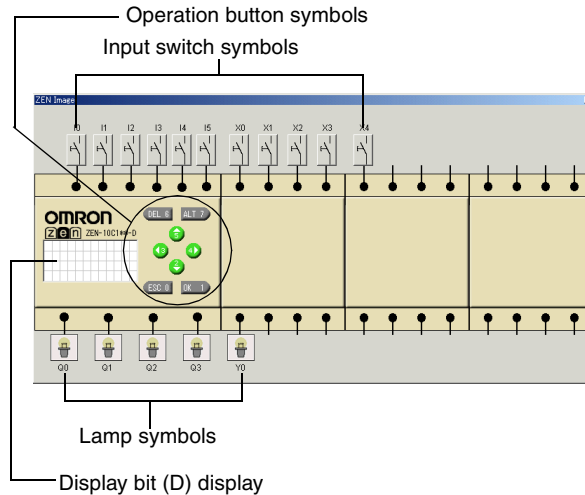
Note To display or hide the ZEN Image Window, click the **ZEN Image Display** Button on the Toolbar.

Input switch specifications can be changed by right-clicking the input switch symbol.

Input Switch Symbols

Symbol	Input specifications	Operation
	Momentary: NO condition	Normally OFF. ON only when left mouse button is held down.
	Momentary: NC condition	Normally ON. OFF only when left mouse button is held down.

Symbol	Input specifications	Operation
	Alternate: NO condition	Remains ON after being clicked. Remains OFF after being clicked again.
	Alternate: NC condition	Remains OFF after being clicked. Remains ON after being clicked again.
	Analog input	Select when using I4/I5 as analog inputs with a DC-type CPU Unit.

With LCD-type CPU Units, operation buttons can be used by the simulator. Either momentary or alternate operation can be selected by right-clicking the operation button symbols.

Operation Button Symbols

Input specifications	Operation
Momentary	Normally OFF. ON only when left mouse button is held down.
Alternate	Remains ON after being clicked. Remains OFF after being clicked again.

- External inputs can be turned ON and OFF by clicking the input symbols. When an external input is turned ON, the color of the connection line between the input symbol and the ZEN terminal changes to green.
- The results of ladder program processing can be checked by observing the status of lamp symbols connected to output terminals (RUN mode only).

Lamp Symbols

Symbol	Status
	Output terminal OFF
	Output terminal ON

- When a display bit (D) is used in the ladder program, the display conditions are shown on the ZEN display (RUN mode only).

Display Bit (D) Function
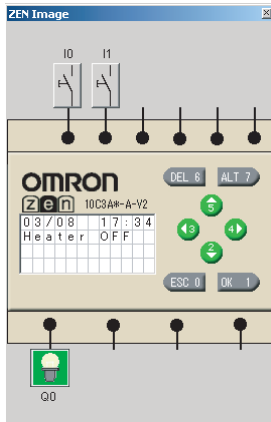
Multiple display bits (D) can be executed simultaneously, and their display conditions monitored.

5-3 Present Value List Display

The present values for timers, holding timers, weekly timers, calendar timers, counters, analog comparators, comparators, and other programming elements used in the ladder program are displayed in list format.
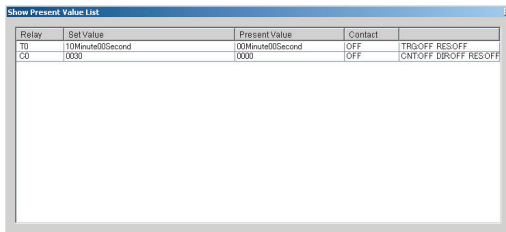
Note To specify whether or not the Present Value List Window is to be displayed, click the **Present Value List Display** Button on the Toolbar.

Present values can be changed by double-clicking on the Present Value Dialog Box.

5-4 Clock Display

When weekly timers or calendar timers are used in the ladder program, present dates and times can be simulated.
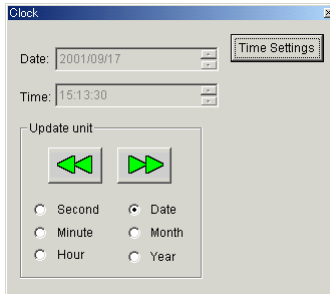
Note
1. To specify whether or not the Clock Display Window is to be displayed, click the **Clock Display** Button on the Toolbar.
2. To set the date and time display styles, select *Settings/Control Panel/Regional Settings* from the *Start* Menu. Select *Date* to set a date style or *Time* to set a time style.

Setting the Clock Forward or Back

The present date and time can be set forward or back in whatever units are set (seconds/minutes/hour/day/month/year) by clicking the **Forward** or **Reverse** Buttons.

Changing the Present Time

The present time can be changed by clicking on **Time Setting** to open the Time Settings Dialog Box.

SECTION 6
Troubleshooting

This section describes errors that may occur while using the ZEN Support Software and possible countermeasures.

6-1   Online Errors and Warnings

Error messages: Messages indicating fatal errors

Message	Probable cause	Countermeasure
Communications Error has occurred.	No response to a command from the ZEN Support Software. Communications timed out.	Check that the Computer Connecting Cable is connected properly to the ZEN and the computer serial port. Check that the communications settings match the connection configuration of the ZEN.
Failed to connect to ZEN. The connected ZEN type ( ) does not match the project's ZEN type ( ). Cannot continue.	Online connection attempted while the ZEN system configuration and the ZEN model in the ZEN Support Software property settings are not the same.	Change the ZEN model in the property settings and the Expansion I/O Unit settings to match the system configuration of the ZEN to be connected online. When only the Expansion I/O Unit configuration is different, the following warning message (bottom line) will be displayed.
Operation failed since ZEN is in RUN mode. STOP ZEN running.	Command executed from the ZEN Support Software while the ZEN is in RUN mode.	Change the ZEN to STOP mode and re-execute the command.
Operation failed since ZEN is protected. Release the protection.	Command executed from the ZEN Support Software while the ZEN is protected.	Remove the protection from the ZEN and re-execute the command.
Operation failed since LCD is operating. Restore the main screen of LCD.	Command executed from the ZEN Support Software while LCD operations being performed on the ZEN.	Return the LCD operations to the Main Screen and re-execute the command.
Error rung found in the program. Program transfer is cancelled.	There is an error in the program.	Refer to the probable causes and countermeasures for Program Check error messages.

Warning messages: Dialog boxes are displayed for determining processing. Follow the instructions given in the dialog boxes.

Messages
ZEN is in RUN mode; execution not possible. Change to STOP mode? Y/N
Return to RUN mode? Y/N
A circuit in the program generated a warning. Continue program transfer?
ZEN model in properties settings (****) does not match model being connected (****). Go online? Y/N (See note.)

Note   This message is displayed when an attempt is made to go online with only the CPU Unit specified in the property settings in the Support Software, without having the Expansion I/O Unit connected. Select "Y" to connect, and transfer the program. This is supported for version 4.0 or higher.

6-2 Program Check Errors and Warnings

Error messages: Message indicating fatal errors
The Program Check Results Dialog Box will be displayed.

Message	Probable cause	Countermeasure
A bit ("relay") type unsupported by the system is used. Check the ladder program.	Bit type used in ladder program that cannot be used with the system configuration set under property settings.	Revise the system configuration set under property settings or change the bit types. Example: The following bit types cannot be used with the following ZEN models: LED-type CPU Units ⠀⠀Weekly timers (@) ⠀⠀Calendar timers (∗) ⠀⠀Display bits (D) CPU Units with AC Power Supply ⠀⠀Analog comparator bits (A) ⠀⠀Designated display bits for analog comparator. CPU Units with DC Power Supply/NPN Connections ⠀⠀Analog comparators (A) The following bit types cannot be used when no Expansion I/O Units are connected: ⠀⠀Expansion I/O Unit input bits (X) ⠀⠀Expansion I/O Unit output bits (Y) Also, the bit addresses that can be used depend on the configuration of Expansion I/O Units.
The setting unsupported in the connected ZEN is used.	An operation has been written that cannot be set for this ZEN version.	The following operations cannot be used with versions prior to 1.10: Setting the date (DAT1) for display with a display bit (D). Setting clear (C) as a function.

Warning messages: The Program Check Results Dialog Box will be displayed with messages to prompt corrective actions.

Message	Probable cause	Countermeasure
No contact (input) or coil (output) is connected, or a connection line is disconnected.	Ladder program input, output, or connection line not connected.	Check the horizontal connections for inputs and outputs and the vertical and horizontal connections for connection lines in ladder programs. Correct any breaks.
Duplicated coil (output) Duplicated timer number Duplicated counter number	The same output is used more than once in the ladder program.	Check the program and correct any duplications.

6-3　Protect Setting and Clearing Errors

Warning messages: A dialog box will be displayed warning of errors in the password.

Error message	Probable cause	Countermeasure
The password is incorrect. The password was set incorrectly.	A different password has been entered from the password that was set under the password settings or protect settings. The password and the reconfirmation of the password differ or more or less than 4 digits were input as the password.	Re-enter the correct 4 digits set under the password settings or protect settings. Enter the same 4 digits in both the password and password confirmation text boxes.

Descriptive messages: A dialog box will be displayed prompting operation. Follow the instructions given in the dialog box.

Error message	Probable cause	Countermeasure
No password is set. Set a password, and try again.	The ZEN protect operation has been attempted while no password has been set.	Enter and reconfirm a password under the password settings and re-execute the protect operation.

Appendix A
Shortcut Keys and Hot Keys

Shortcut Keys

Key	Function	Menu bar equivalent
Ctrl + A	Select All	Edit (E) − Select All (A)
Ctrl + C	Copy	Edit (E) − Copy (C)
Ctrl + F	Find	Edit (E) − Find (F)
Ctrl + N	Create	File (F) − New (N)
Ctrl + O	Open	File (F) − Open (O)
Ctrl + P	Print	File (F) − Print (P)
Ctrl + R	Edit Rung comments	
Ctrl + S	Save	File (F) − Save (S)
Ctrl + V	Paste	Edit (E) − Paste (P)
Ctrl + W	Online Connect/Disconnect	ZEN (Z) − Go Online/Offline (W)
Ctrl + X	Cut	Edit (E) − Cut (C)
Ctrl + Y	Redo	Edit (E) − Undo (U)
Ctrl + Z	Undo	Edit (E) − Redo (Y)
Ctrl + Alt + DOWN	Insert Rung	Insert (I) − Rung (M)
Alt + LEFT	Zoom Out	View (V) − Zoom Out
Alt + RIGHT	Zoom In	View (V) − Zoom In
Alt + F4	Quit	
I	CPU Unit Input Bit Edit Dialog Box Display	
Q	CPU Unit Output Bit Edit Dialog Box Display	
X	Expansion I/O Unit Input Bit Edit Dialog Box Display	
Y	Expansion I/O Unit Output Bit Edit Dialog Box Display	
M	Work Bit Edit Dialog Box Display	
H	Holding Bit Edit Dialog Box Display	
B	Button Switch Edit Dialog Box Display	
T	Timer Edit Dialog Box Display	
#	Holding Timer Edit Dialog Box Display	
@	Weekly Timer Edit Dialog Box Display	
*	Calendar Timer Edit Dialog Box Display	
C	Counter Edit Dialog Box Display	
F	8-digit Counter Edit Dialog Box Display	
A	Analog Comparator Edit Dialog Box Display	
P	Comparator Edit Dialog Box Display	
G	8-digit Comparator Edit Dialog Box Display	
D	Display Edit Dialog Box Display	
Delete	Delete	

Key	Function	Menu bar equivalent
F3	Find Next	Edit (E) – Find Next
F1	Help	

Hot Keys

Hot keys can be used to insert a programming element into a selected cell. If inputs and outputs are already set, however, the existing data will be given priority.

Key	Function
SHIFT + I	Insert Input (Input Edit Dialog Box Display)
SHIFT + O	Insert Output (Output Edit Dialog Box Display)
-	Insert Horizontal Connection Line
I	Insert Vertical Connection Line

Appendix B
Support Software Version Upgrades

The following table shows the relationship between the version and functions of the ZEN Support Software and the ZEN CPU Unit.

Date of revision	ZEN CPU Unit	ZEN Support Software
January 2002	<u>System Software (See note 1.)</u> The system software was upgraded to version 1.1. <u>Main Changes</u> The following display functions have been added to LCD-type CPU Units. • Clear display function • The display object DAT1 (day/month)	<u>Changes Applicable from Version 2.0 (ZEN-SOFT01-V2)</u> • Changed to handle additional display functions. • Simulation function added. • Improvements made to functions, operability, and display.
April 2003	<u>System Software (See note 1.)</u> The system software was upgraded to version 2.0. ("-V1" was added to the CPU Unit model number.) <u>Main Changes (See note 2.)</u> • The number of timers, counters, weekly timers, calendar timers, and display bits was increased from 8 to 16. The number of holding timers was increased from 4 to 8. • A 20-point CPU Unit was added to the lineup.	<u>Changes Applicable from Version 3.0 (ZEN-SOFT01-V3)</u> • Changed to handle the memory area expansion in "-V1" CPU Units. • Changed to handle addition of 20-point CPU Units.
January 2006	<u>System Software (See note 1.)</u> The system software was upgraded to version 3.0 ("-V2" was added to the CPU Unit model number.) <u>Main Changes (See note 2.)</u> • Addition of multiple-day operation and pulse-output operation to the weekly timers • Addition of twin time operation to the timers • Addition of an 8-digit counter and 8-digit comparators • Addition of models with communications (10-point models only) and economy CPU Units • Addition of daylight saving time settings for Australia and New Zealand • Deletion of contrast control	<u>Support for Version 4.0 or Higher (ZEN-SOFT01-V4)</u> • Supports CPU Units with enhanced functionality (-V2) • Supports half-sized I/O Expansion I/O Units (-8E1) • When the type of the CPU Unit (the CPU Unit and Expansion I/O Unit configuration) is the same as that specified in the property settings of the Support Software, program transfer is possible even if Expansion I/O Units are not connected.

Note 1. "System software" is the software for processing the CPU Unit's program. With LCD-type CPU Units, the system software version can be read by selecting *Other/System information* from the menu. With "-V2" CPU Units, "V03.00" will be displayed as the system software version.

2. Refer to page 15 for the memory area differences between versions.

Compatibility between Support Software and Data

Data	Version of the ZEN Support Software				
	Ver. 1.0	**Ver. 1.1**	**Ver. 2.0**	**Ver. 3.0**	**Ver. 4.0 or 4.1**
Data created with Ver. 1.0	Yes	Yes	Yes	Yes	Yes
Data created with Ver. 1.1	Yes	Yes	Yes	Yes	Yes
Data created with Ver. 2.0	No (See note.)	No (See note.)	Yes	Yes	Yes
Data created with Ver. 3.0	No (See note.)	No (See note.)	No (See note.)	Yes	Yes
Data created with Ver. 4.0 or 4.1	No (See note.)	No (See note.)	No (See note.)	No (See note.)	Yes

Note A message saying that it was not possible to read the file will be displayed if an attempt is made to read incompatible data.

Compatibility between the ZEN CPU Unit and the Support Software

Version of CPU Unit (See note 1.)	Version of the ZEN Support Software				
	Ver. 1.0	**Ver. 1.1**	**Ver. 2.0**	**Ver. 3.0**	**Ver. 4.0 or 4.1**
Ver. 1.0	Yes	Yes	Partial (See note 2.)	Partial (See note 2.)	Partial (See note 2.)
Ver. 1.1	Partial (See note 3.)	Partial (See note 3.)	Yes	Yes	Yes
Ver. 2.0 ("-V1" CPU Units)	Partial (See notes 3 and 4.)	Partial (See notes 3 and 4.)	Partial (See notes 3 and 4.)	Yes	Yes
Ver. 3.0 ("-V2" CPU Units)	No	No	No	No	Yes

Note   1.   With LCD-type CPU Units, the system software version can be read by selecting *Other/System information* from the menu. With "-V2" CPU Units, "V03.00" will be displayed as the system software version.

2.   The setting for a display bit (D) will appear as follows:

- If "DAT1: day/month" is set for display, the LCD display will show T#● and the display function will not operate.

- If "C (clear)" is set, the LCD display will appear as [--| |-----------0D0] and the display function will not operate.

Note   The above operations were not supported in ZEN versions prior to 1.1.

3. When reading out the program from the ZEN, the following items will be determined based on the display function (D) settings contained in the program.

   • If "DAT1: day/month" is set, CHR (character designation) will be set.

   • If "C (clear)" is set, the display function (D) will be deleted from the program.

   Note The above operations were not supported by ZEN Support Software versions lower than 2.0.

4. Cannot be used with 20-point CPU Units.

   Restricted to use within the memory area range of Pre-V1 CPU Units.

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