

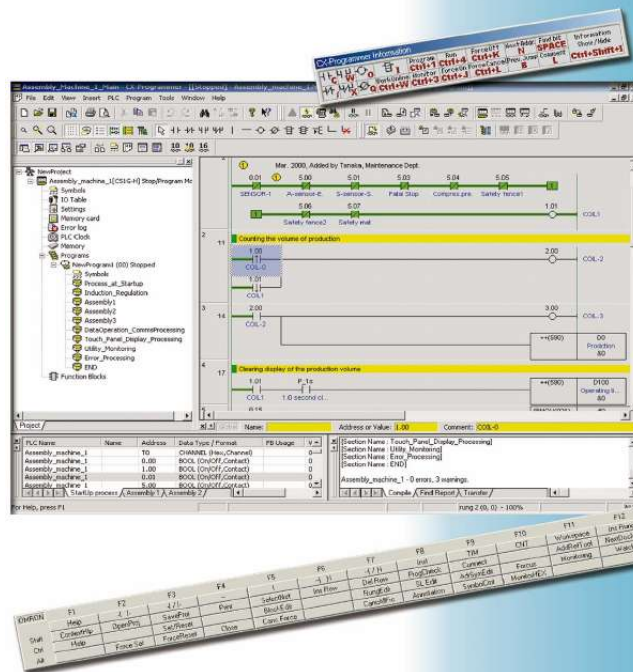


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You can read the recommendations in the user guide, the technical guide or the installation guide for OMRON CX-PROGRAMMER. You'll find the answers to all your questions on the OMRON CX-PROGRAMMER in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

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CX-Programmer Introduction Guide



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Manual abstract:

0 or later is required to read the PDF files. @@ - The screen views used in this guide may be different from the actual view, and be subject to change without notice. - The product names, service names, function names, and logos described in this guide are trademarks or registered trademarks of their respective companies. - The symbols (R) and TM are not marked with trademarks and registered trademarks in this guide respectively - The product names of the other companies may be abbreviated in this guide. Contents Available PC Available Device Types Chapter 1 Installation - Startup 1. Installation 1-1 1-1. Installation of CX-Programmer 1-1 1-2. Online Registration 1-5 2. Startup of CX-Programmer 1-8 4. New Project Opening and Device Type Settings 1-7 3. Main Window 1-9 4-1. Compatible SYSWIN Key Allocation 1-10 4-2. Section 1-11 4-3. Deletion and Display of Unnecessary Windows 1-13 5. Program Creation 1-14 5-1. Entry of Normally Open Contact 1-15 5-2. Entry of Coil 1-16 5-3. Edit of Symbol Comment 1-18 5-4. Entry of Rung Comment 1-19 5-5. Entry of Normally Closed Contact 1-19 5-6.



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Appendix Available PC Hardware Requirements OS Item PC Windows 2000 Service Pack 2 or later /Windows XP IBM PC/AT Compatible DOS/V (IBM AT compatible) computer with a Pentium II 333 MHz processor or higher. Pentium III 1GHz or higher is recommended. 256MB or higher required. 512MB or higher is recommended. Windows Vista *1 IBM PC/AT or compatible with a processor recommended by Microsoft. CPU Processor recommended by Microsoft. 1 GB or higher is recommended. 512MB or higher required.

1GB or higher is recommended. Memory *2 Hard disk space Display CD-ROM /DVD-ROM drive Communications Port 550MB or more free space 800X600 SVGA or grater At least one drive At least one USB Port or RS-232C Port *1: The following restrictions apply when CX-Programmer is used with Windows Vista. Help files with an HLP file name extension cannot be accessed. These help files can be accessed if the program distributed by Microsoft for Windows Vista is installed. Refer to the Microsoft homepage listed below or contact Microsoft for details on installing the file.

The download page is automatically displayed if an HLP help file is opened while the user is connected to the Internet. <http://support.microsoft.com/kb/917607/en-us> *2: Required memory (RAM) size depends on the size of your programs to be created. If the required memory (RAM) size is larger than your PC's memory (RAM) size, operation of CX-Programmer might be slowed down.

For details of PC in which CX-One can be installed, refer to "CX-One Setup Manual", Section 2 "Installation and Uninstallation". Available Device Types CX-

Programmer supports the following PLC (Programmable Logic Controller) types. Series CS CPU Unit Type CS1H-CPU67/66/65/64/63 (-V1) CS1G-CPU45/44/43/42 (-V1) CS1G-CPU45H/44H/43H/42H CS1H-CPU67H/66H/65H/64H/63H CS1D-CPU67H/65H/CPU67S/65S/44S/42S C12H-CPU68-EIP/67-EIP/66-EIP/65-EIP/64-EIP CJ1G-CPU45/44 CJ1M-CPU23/22/21/13/12/11 CJ1G-CPU45H/44H/43H/42H CJ1H-CPU66H/65H CJ1H-CPU67H-R/66H-R/65H-R/64H-R C1000H-CPU01 (-V1) C2000H-CPU01 (-V1) (Simplex system only) C200H-CPU01/02/03/11/21/22/23/31 C200HX-CPU34/44/54/64 C200HG-CPU33/43/53/63 C200HE-CPU11/32/42 C200HX-CPU34-Z/CPU44-Z/CPU54-Z/CPU64-Z/CPU65-Z/CPU85-Z C200HG-CPU33-Z/CPU43-Z/CPU53-Z/CPU63-Z C200HE-CPU11-Z/CPU32-Z/CPU42-Z C200HS-CPU01/03/21/23/31/33 CP1H-X /XA /Y CP1L-M /L CPM2A-20CD/30CD/40CD/60CD CPM2C-10CD/10C1D/20CD/20C1D CPM2C-S100C/110C CPM2C-S110C-DRT CPM1(A)-10CDR/20CDR/30CDR/40CDR (-V1) CQM1H-CPU11/21/51/61 CQM1-CPU11/21/41/42/43/44/45 CV1000-CPU01 (-V1) CV2000-CPU01 (-V1) CV500-CPU01 (-V1) CVM1-CPU01/11 (-V1) (-V2)/CPU21-V2 IDSC-C1DR-A/C1DT-A SRM1-C01/C02 (-V1) (-V2) C200PC-ISA01 (C200HG-CPU43 *3) C200PC-ISA02-DRM (C200HG-CPU43 *3) C200PC-ISA02-SRM (C200HG-CPU43 *3) C200PC-ISA03 (C200HG-CPU43 *3) C200PC-ISA03-DRM (C200HG-CPU43 *3) C200PC-ISA03-SRM (C200HG-CPU43 *3) C200PC-ISA13-DRM (C200HX-CPU64 *3) C200PC-ISA13-SRM (C200HX-CPU64 *3) CS1PC-PCI01-DRM (CS1G-CPU45 *4) CS1PC-PCI01H-DRM (CS1G-CPU45H *4) FQM1-CM001/MMA21 /MMP21 CJ C1000H C2000H C200H C200HX C200HG C200HE C200HX-Z C200HG-Z C200HE-Z C200HS CP1H/CP1L CPM2 (*1) CPM2C-S1 (*1) CPM1/CPM1A (*1) CQM1H CQM1 CV1000 (*2) CV2000 (*2) CV500 (*2) CVM1 IDSC SRM1 (*1) SYSMAC Board, or SYSMAC CS1 Board (Internal connection of a PC with the SYSMAC board that is built-in the PC where CX-Programmer is installed) FQM1 Series Flexible Motion Controller *1: For WS02-CXPC2-V (one license (limited to micro PLCs)), only these PLC types are available.



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*2: CX-Programmer does not support SFC. *3: To connect with SYSMAC Board, specify the PLC types in parentheses. Only when selecting these PLC types, you can select "SYSMAC Board" as a network type. *4: To connect with SYSMAC CSI Board, specify PLC types in parentheses. Only when selecting these PLC types, you can select "CSI Board" as a network type. Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program 1. Installation procedure of CX-Programmer Before installation of CX-Programmer, you must: Before installation of CX-Programmer, you must: · terminate all Windows programs, and terminate all Windows programs, and · uninstall older version of CX-Programmer and peripheral tools (such as CX-Protocol) if you uninstall older version of CX-Programmer and peripheral tools (such as CX-Protocol) if they are already installed.

they are already installed. · Installation takes about 5 to 20 minutes depending on your PC. (5 minutes for a PC with Installation takes about 5 to 20 minutes depending on your PC. (5 minutes for a PC with CPU: Celeron2.2GHz, main memory: 512MB, and CD-ROM drive: 48x) CPU: Celeron2.2GHz, main memory: 512MB, and CD-ROM drive: 48x) · To change/modify/delete CX-Programmer after installation, refer to the PDF manual "CXTo change/modify/delete CX-Programmer after installation, refer to the PDF manual "CXProgrammer Operation Manual", Chapter 2 "Installation and Uninstallation". Programmer Operation Manual", Chapter 2 "Installation and Uninstallation". 1-1. Installing CX-Programmer Insert the CX-Programmer installation disk (CD-ROM) to your PC's CD-ROM drive. [Choose Setup Language] dialog box is displayed.

Default language of the OS on your PC is automatically selected. Check if the language is appropriate, then click [OK]. Click [OK]. CX-Programmer splash screen is displayed, then CX-Programmer installation is started. Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program CX-Programmer setup wizard is started.

Click [Next]. [License Agreement] dialog box is displayed. Read the software license agreement carefully. If you agree with all items, select [I accept the terms of the license agreement] radio button and click [Next] button. Select the radio button.

Click [Next]. [User information] dialog box is displayed. Enter [User], [Company], [License] (product serial number of CXProgrammer). Click [Next]. Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program [Choose Destination Location] dialog box is displayed. Select an installation folder, then click [Next]. [Setup Type] dialog box is displayed. Select the radio button [Complete]. By selecting [Custom], you can individually select and install a peripheral tool. Click [Next].

Read the message and click [Next]. If OMRON FB Library is selected, [Choose Destination Location] dialog box of OMRON FB Library is displayed. [Ready to Install the Program] dialog box is displayed. Click [Install]. CX-Programmer installation is started. Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program A dialog box (left) is displayed. Click [Finish] button to finish the installation wizard. Now installation is completed. By checking [Online registration] check box, you can proceed to online registration. Click [Finish].

Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program 1-2. Online Registration If you have Internet environment for the installed PC, you can perform online user registration. After installation is completed, [Online Registration] dialog box is displayed. If you click [Register] button, your Web browser is started to connect to "Omron's CX-One Web site". (*1) (*2) *1: If you click [Exit] button to cancel online registration, [Online Registration] dialog box is displayed every time CX-Programmer is started.

*2: If you do not have Internet environment, or you do not want to register online, fill and send the user registration card that comes with the product. MEMO Use to record license No. etc. MEMO Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program 2. Startup of CX-Programmer Windows task bar [Start] [Programs] [OMRON] [CX-One] [CX-Programmer] [CX-Programmer] The initial screen when starting up CX-Programmer is displayed.

Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program 3. New Project Opening and Device Type Settings Click the toolbar button [New] in CX-Programmer. Click Click the left mouse button. Click the left mouse button on the "Settings" button to show the [Device Type Settings] dialog. Click the left mouse button on and select a CPU type. Click [OK] to decide the selected CPU type. 4. Main Window Each function of the main window is explained here. Title Bar Menus Toolbars Information Window Project Tree Symbol Bar Section Status Bar Project Workspace Name Title Bar Menus Toolbars Section Project Workspace Project Tree Ladder Window Output Window Output Window Ladder Window Contents/Function Shows the file name of saved data created in CX-Programmer. Enable you to select menu items.

Enable you to select functions by clicking icons. Select [View] -> [Toolbars], and you can select toolbars to be displayed. Dragging toolbars enables you to change the display positions by the group. Enables you to divide one program into a given number of blocks. Each can be created and displayed. Controls programs and data. Enables you to copy data by the element by executing Drag and Drop between different projects or within a project. A screen for creating and editing a ladder program. Shows error information in compiling (error check). Shows the results of searching for contacts/coils in the list form.

Shows error details when errors occurred while loading a project file. Shows information such as a PLC name, online/offline, location of an active cell. Displays a small window to show the basic shortcut keys used in CX-Programmer. Select [View] -> [Information Window] to show or hide the Information window. Displays the name, address or value, and comment of the symbol presently selected by the cursor.



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Status Bar Information Window Symbol Bar 4-1. Compatible SYSWIN Key Allocation The keyboard mapping function allows the function keys to operate like SYSWIN. Select the [Tools] -> [Keyboard Mapping...]

] menu. Function keys will be available for entering ladder programs. Click Click Click After the above operations, the key allocations will be changed and become compatible with SYSWIN. When SYSWIN key allocation is selected, a key operation guide will be displayed at the bottom of the display. When SYSWIN key allocation is selected, a key operation guide will be displayed at the bottom of the display. Right mouse-click Click the icon shown in the task bar on the rightbottom of the display. Display in Normal View When Shift is pressed When Ctrl is pressed When Alt is pressed Display in Full View 4-2. Section Section is a function to create/display a "block" of a program divided per function. It improves not only the visibility of a program but also the development productivity by reusing components if the program consists of similar controls, because copy and paste on the program tree are available. Moreover, program upload by section is possible and it enables you to do online operation smoothly.

Example Giving names indicating the contents of processing or controls is possible. Changing the order of sections and copy & paste are possible by drag & drop with a mouse. There is no limit on the number of sections per program. Changing a section name Click the right button of the mouse on the section whose name is to be changed. Select [Rename]. Enter a given name. Addition of a section Click the right mouse button on [NewProgram1]. Select [Insert Section]. Perform the same operation as the previous page to name the inserted section. It is possible to go to each section (a ladder block) from a section list. As checking the global image (control flow) of a program on the section list, you can go to a specified section. Double-click a section that you want to check its ladder. 4-3. Deletion and Display of Unnecessary Windows Normal screen To delete Project Workspace, Press from a keyboard Alt 1 Press [Alt]+[1] to show Project Workspace again. To delete Output Window, Press from a keyboard [ESC] or Alt 2 Press [Alt]+[2] to show Output Window again. 5. Program Creation Coding of a simple program is explained here. Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program After checking the cursor position at the upper left of Ladder Window, start programming. 5-1. Entry of Normally Open Contact C Press [C] from a keyboard to open the [New Contact] dialog. 0 of the upper digit of an address can be omitted. 0 ENT Switch 1 Enter a symbol comment. ENT Deletion of instructions Move the cursor to the instruction and then press the DEL key. Move the cursor to the right cell of the instruction and press the BS key. 0 of the upper digit of an address is omitted when shown. [.] (period) is displayed between a channel number and a relay number. Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program 5-2. Entry of Coil O Press [O] from a keyboard to open the [New Coil] dialog. 100 ENT Coil 0 ENT Press [R] to normalize a rung.

R Rungs are also normalized when you move the cursor position to the cell inverted in blue by pressing the arrow keys from a keyboard or using a mouse. Useful Function: Automatic check of duplicated coils Useful Function: Automatic check of duplicated coils If a duplicated coil is entered during program creation, the following message is If a duplicated coil is entered during program creation, the following message is displayed and you can notice that the coil is duplicated right away. displayed and you can notice that the coil is duplicated right away. Press the [ESC] key to close the open Output Window. Output Window automatically opens. Double-click by using a mouse (or press F4). The cursor moves to the place of the applicable coil on Ladder Window. Double-click Double-click The place of a duplicated coil in the program is displayed. Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program [Reference] 1. Press [Alt]+[Y].

You can switch showing/hiding of Symbol Comment. Alt Y 2. Click the toolbar button [Show Program/Section Comments] to switch the display of the comments shown in the head row. Click 3. Select [Tools] \ [Options] from the CX-Programmer menu. You can set hiding of the comment entry dialog. [Tools] -> [Options] Click the check box to remove the check mark. The comment entry dialog is not displayed anymore. Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program 5-3. @@@@Excel and CX-Programmer too. @@@@Entry of Rung Comment Move the cursor to this position. @@@@-> [Properties] Enter [Mar. @@@@For the other series PLCs, use DIFU (13). ENT C 5-8. Entry of Differential Contact...Down 101 Click Click [Down]. This entry method is available only for CS/CJ and CV series PLCs. @@@@Show the [New Instruction] dialog.

I Enter @MOV #0 DI00 Enter a comment if necessary. Attach @ (at mark) Attach @ (at mark) before instructions. It before instructions. It makes the instructions makes the instructions differential. differential. ENT ENT R Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program Refer to the former pages to execute coding. 5-15. Entry of OR Rung ENT W ENT 3 ENT Entry of comments is omitted here. ENT W ENT 4 ENT Refer to the section 5Refer to the section 56 to enter annotations. 6 to enter annotations.

Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program 5-16. Entry of Advanced Instructions 3 - Entry by Fun No. Show the [New Instruction] dialog. Show the [New Instruction] dialog. I 021 The instruction The instruction corresponding to the corresponding to the entered Fun No. is entered Fun No. is displayed. displayed. Enter #0 D0 ENT ENT Refer to the section 5-4 to enter a rung comment. R Note: Note: The Fun No. of MOV The Fun No. of MOV depends on PLC types. depends on PLC types. CS-series -> 021 CS-series -> 021 CJ-series -> 021 CJ-series -> 021 CV-series -> 030 CV-series -> 030 C-series -> 21 C-series -> 21 Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program Refer to the former pages to enter pages to enter rungs and comments.



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comments. 5-17. Entry of Timer Instructions Entry of a Timer bit / T0 ENT *T0: Indicates TIM0. Enter a comment. Timer 1 ENT Entry of a Timer instruction I TIM 0 #30 ENT R Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program Refer to the former Refer to the former pages to execute pages to execute coding. coding.

5-18. Entry of Counter Instructions Entry of a Counter instruction I CNT 0 #5 ENT Move the cursor by using arrow keys or a mouse. Enter a bit for reset. R C CO ENT ENT Entry of a Counter bit O 402 ENT ENT R Installation Installation to Startup to Startup Opening a Opening a new project new project Device type Device type settings settings Creating a Creating a program program Move the cursor to Move the cursor to this position. The this position. The rung is inverted as rung is inverted as shown right. shown right. 5-19. Edit of Rungs ..

.Copy & Paste Refer to the former sections to enter a rung. Ctrl C You can copy instructions selected by dragging a mouse. You can also cut selected rungs (instructions) by [Ctrl]+[X]. (Copy a rung) Press the key to Press the key to move the cursor to move the cursor to this position.

this position. Ctrl V (Paste a copied rung) Click each instruction Click each instruction and then change the and then change the bit numbers. bit numbers. When making a mistake, press press or [Ctrl+Z] for Undo (return to the previous operation) or [Ctrl+Y] for Redo (go to the next operation) 5-20. Entry of END Instruction At the creation of a new project, a At the creation of a new project, a section of the END instruction only is section of the END instruction only is automatically generated.

automatically generated. You do not need to enter an END You do not need to enter an END instruction. instruction. Note: The END section is not generated when you load a program created with CX-Programmer V2 or the former versions. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 1. Program Error Check (Compile) Before program transfer, check errors. Click Errors and addresses Errors and addresses are displayed on are displayed on Output Window. Output Window. Double-click a Double-click a displayed error, and displayed error, and the cursor in Ladder the cursor in Ladder Diagram will go to the Diagram will go to the corresponding error corresponding error location and the error location and the error rung will be shown in rung will be shown in red. red.

Modify the error. Modify the error. Output Window automatically opens at program check. The cursor moves to an error location by pressing J or F4 key.

Output Window closes by pressing the ESC key. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 2. Going Online CX-Programmer provides three kinds of connecting methods depending on usage. Normal online. Enables you to go online with a PLC of the device type and method specified when opening a project. Normal online.

Enables you to go online with a PLC of the device type and method specified when opening a project. Auto online. Automatically recognizes the connected PLC and enables you to go online with a PLC with one button. Auto online. Automatically recognizes the connected PLC and enables you to go online with a PLC with one button.

-> Uploads all data such as programs from the PLC. -> Uploads all data such as programs from the PLC. Online with Simulator. Enables you to go online with CX-Simulator with one button (You need to install CX-Simulator.) Online with Simulator.

Enables you to go online with CX-Simulator with one button (You need to install CX-Simulator.) This time, online/debug This time, online/debug functions when working functions when working online with CX-Simulator online with CX-Simulator are explained in this are explained in this guide (Install CXguide (Install CX Simulator separately). Simulator separately). Click Click [OK]. Program transfer starts. Click [OK]. The CX-Simulator The CX-Simulator Console box is Console box is shown. shown. The operating mode The operating mode of the active PLC is of the active PLC is shown. shown.

The background color The background color of Ladder Window of Ladder Window changes to gray. changes to gray. Scan time is displayed Scan time is displayed (except for Program Mode). (except for Program Mode). Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 3. Monitoring Change the PLC Change the PLC (simulator) to (simulator) to Monitor Mode. Monitor Mode. Click The on/off statuses of contacts and coils are monitored. Click [Yes]. If your program has a large volume of data, the scroll speed of the screen may become slow when monitoring.

In that case, click the below icon to cancel monitoring once, scroll the screen to the address you want to monitor, and then change to monitoring mode again. toggles on/off of PLC monitoring. The rungs being The rungs being monitored are shown monitored are shown in a specified color. in a specified color. The present value of The present value of I/O memory is shown.

I/O memory is shown. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 4. Monitoring - 2 Monitoring Many Locations in Program at Once Move the mouse Move the mouse pointer to the arrow pointer to the arrow position shown in the position shown in the right figure and drag right figure and drag the cursor down with the cursor down with the left mouse button the left mouse button pressed. pressed. You can split Ladder Window and monitor more than one location in a program at once.

The screen is divided The screen is divided into two panes up into two panes up and down, and you and down, and you can display any can display any address in two panes address in two panes respectively by using respectively by using the scroll bars. the scroll bars. 5. Monitoring - 3 Monitoring in Hex Click to switch the display format of the present value of IO memory between decimal and hexadecimal. Shown in decimal Shown in hex Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 6. Monitoring - 4 Watch Window I/O monitoring of the addresses specified in Watch Window is executed. Display Watch Window. Alt 3 Enter a bit number that you want to monitor. 400 ENT Press the ENT key continuously for auto increment of addresses.



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You can also enter a given address in this status.

address in this status. ENT ENT ENT Entry of BOOL type (contact) Entry of BOOL type (contact) The addresses registered in Watch Window are still stored when CX-Programmer is opened next time. Example: Entry of 4CH 00Bit Enter "." (period) between CH and Bit. Enter "." (period) between CH and Bit. Or enter "400" without a period in the "Name or Or enter "400" without a period in the "Name or address" box and then specify "BOOL" in the "Data address" box and then specify "BOOL" in the "Data Type/Format" box (Reverse the box and then press B Type/Format" box (Reverse the box and then press B key form the keyboard.) key form the keyboard.) Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 7. Monitoring - 5 Present Value Change and Binary Monitoring in Watch Window The present values of bits and words are changed in Watch Window.

In Watch Window, binary monitoring is possible for the data that can be treated by the word. Double-click the mouse. An entry dialog opens. Click Enter a new value that you want to change to. 4-word data is 4-word data is displayed in the displayed in the binary system.

binary system. As shown in the guidance at the bottom of the dialog, Force On/Off and Set On/Off are enabled also by key operation. Click the right mouse button on a bit, and you will be able to select Force On/Off and Set On/Off from the popup menu. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 8. Useful Functions of Watch Window Watch Window has a function that classifies and displays data in sheets like MSEXCEL and names each sheet given names.

This function is useful for debug or startup if you gather and manage the bits and words you want to check as one block in one sheet. Click the right button Click the right button of a mouse on Sheet1, of a mouse on Sheet1, and then select and then select [Watch Sheet] -> [Watch Sheet] -> [Rename]. [Rename]. Enter a name. Enter a name. Click [OK]. Click [OK]. To add a sheet, To add a sheet, select [Watch sheet] select [Watch sheet] -> [Insert]. -> [Insert]. It is useful to manage data if you name sheets by the phase or assembly.

Right-click on Watch Window. -> Select Right-click on Watch Window. -> Select [View] from the popup menu. And then you [View] from the popup menu. And then you will be able to choose showing/hiding of each will be able to choose showing/hiding of each item on Watch Window. item on Watch Window. The names set by this operation are all saved when the project is saved (extension: .opt). The names set by this operation are all saved when the project is saved (extension: .opt).

Therefore, they are loaded as well as data such as ladder programs when the project is Therefore, they are loaded as well as data such as ladder programs when the project is loaded next time. loaded next time. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 9. Monitoring - 6 Watch Window - 2 Move the mouse Move the mouse cursor to this cursor to this position. position.

Drag & Drop from Ladder Diagram enables you to add an address to be monitored. Drag and drop on Watch Drag and drop on Watch Window. Window. Data such as rungs, bits per block, or operands of advanced instructions is Data such as rungs, bits per block, or operands of advanced instructions is pasted on Watch Window. pasted on Watch Window.

Moreover, the on/off statuses of the bits and the present values of words Moreover, the on/off statuses of the bits and the present values of words are displayed. are displayed. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 10. Monitoring - 7 Rung-wrap of Long Rung on Display This function makes a rung longer than the right bus bar as shown in the below figure wrap when displayed. Select [View] -> [Show in RungWrap]. The rung is wrapped at the right bus bar. Once set, this function is always active until released by taking the reverse procedure of the above one. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 11. Monitoring - 8 Differential Monitor The function detects differential up/down of a specified bit and indicates that differential conditions are satisfied by sound or display. The function eliminates the use of a trap rung for checking operation and improves the efficiency of programming and debug operations.

Move the cursor to a bit to be monitored. Click Or click the right mouse button on the applicable bit and select [Differential Monitor] from the popup menu. Click [Start]. The count number is displayed on the The count number is displayed on the dialog every time the differential dialog every time the differential condition (differential up in this condition (differential up in this example) is satisfied and the color of example) is satisfied and the color of the box changes each time. the box changes each time. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 12. Force On/Off Move the cursor to a contact or coil that you want to force on/off. Contacts/coils are forced on/off from CX-Programmer. Click the right mouse Click the right mouse button. -> button.

-> [Force] -> [On] [Force] -> [On] mark indicates that the bit is now being forced on/off. Once bits/coils are forced on/off, the forced statuses are held until cancelled or the reverse procedures of on/off are taken. The statuses do not change by an external input or the operational result of the program. Moreover, force operations are not enabled when the PLC is in the Run mode. Force Off/Cancel of Force Off/Cancel of bits/coils are enabled bits/coils are enabled in the same way.

in the same way. Shortcut Key Shortcut Key Ctrl+J: Force On Ctrl+J: Force On Ctrl+K: Force Off Ctrl+K: Force Off 13. Displaying List of Forced-on/off Bits The bits forced on/off can be listed in a table. This function enables you to check the forced statuses of more than one bit at a glance. Display Project Workspace.

[Alt] + 1 Double-click [Memory]. Click the [Address] tab. Double-click [Forced Status]. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 14.



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Changing Set Value of Timer The set value of a timer is changed while CPU is running (in the Monitor mode only). Move the cursor to the set value of a timer. Enter the new set value #100. ENT Or double-click. Click [OK] to complete. 15.

Changing Present Value of Timer The present value of a timer is changed while CPU is running (in the Monitor mode only). Move the cursor to the present value of a timer. Enter a new present value 5000. ENT Or double-click. Click [Set] to complete. Subtraction starts from the new value 5000. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 16. Find Function - 1 Find from Address Reference Tool Display Address Reference Tool. Alt 4 Reference 1 Enter a bit number that you want to find in the [Address] field. field.

2 Click You can also move the You can also move the cursor to a bit that you cursor to a bit that you want to find. want to find. 3 The found The found bits are listed. bits are listed. Click a bit that you want to find, and the focus will move to the corresponding position in the rung.

Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 17. Find Function - 2 Retrace Find of Ladders The function retraces ladder rungs so that you can find the causes of the coils not turned on. (1)The reason why the coil 3.00 is not turned on is that its contact 2.00 is not turned on.

Therefore, the function retraces rungs to find the coil 2.00. @@Suppose the cause is the contact 1.00 and find the coil of 1.00. @@@@Press the [Space] key to jump from a coil to a contact having the same address as the coil or from a contact to a coil in reverse. Press the [N] key for another jump from a contact or coil at the cursor position to a next one having the same address. To move back to the position of the last jump, press the [B] key. This is a useful function available in SYSMAC Support Software. CX-Programmer inherits it.

Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 18. Find Function - 3 Find by Keyword in Comment If you enter an operator's name or an operation date in annotations as a note at startup or maintenance, this function finds the bit or word that the name or date is used and displays the result on Output Window. Click The [Find] dialog shows up. Click . Select [All (strings)] from the pull-down menu. Scope of Find is specifiable. PLC To find a target from all tasks (programs). Current view To find from a section or task (program) being edited -> Click an icon in Project Workspace to select a task. Enter a keyword to find. Click Click [OK].

The contacts/coils of which The contacts/coils of which annotations include the annotations include the keyword entered in the keyword entered in the Find dialog are displayed Find dialog are displayed on Output Window. on Output Window. Double-click an item, and then Double-click an item, and then the cursor moves to the the cursor moves to the applicable bit in Ladder applicable bit in Ladder Window. Window. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 19.

Find Function - 4 Go To Rung Comment This is a function that displays a list of rung comments on the screen and moves the cursor to the position where a selected rung comment is used in the ladder. Rung comments improve the efficiency of debug or maintenance of rungs divided into blocks per function. A list of the rung comments used in rungs are displayed on a separate window. L Or Alt Shift R Click a rung comment in the list, and the cursor goes to the position where the rung comment is used in the ladder. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 20.

Find Function - 5 Find Bit Addresses Click the right mouse button on Ladder Window. Select [Find Bit Addresses] from the popup menu. Find Addresses and Find Mnemonics are also available. Enter an address (bit number) to find. (period between a channel and a bit is unnecessary.) Set the scope of Find (Current view). Click [Report]. Click the [How to Input] button, and the Help of [Find and Replace Examples] will be displayed. Click [OK]. Output Window is Output Window is displayed and the displayed and the results are listed.

results are listed. Double-click an item Double-click an item in the list, and the in the list, and the cursor will go to the cursor will go to the applicable bit. applicable bit. Online Online to Transfer to Transfer Monitoring Monitoring Force On Force On Force Off Force Off Program Program Check Check Online Online Edit Edit 21. Online Edit (1) Move the cursor to a rung you want to modify. You can also select more than one rung by Drag&Drop with a mouse. (2) Select [Program] -> [Online Edit] -> [Begin] from the CX-Programmer menu. Double-click Double-click (3) Enter a bit number (4.11 in this example) you want to edit to. (4) Select [Program] -> [Online Edit] -> [Send Changes] from the menu.

End Useful Functions You can select either vertical or horizontal display of output instructions. Vertical display of output instructions [Tools(T)] -> [Options(O)] Check the [Show Check the [Show output instructions output instructions horizontally (Z)] box. horizontally (Z)] box. Horizontal display of output instructions .



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