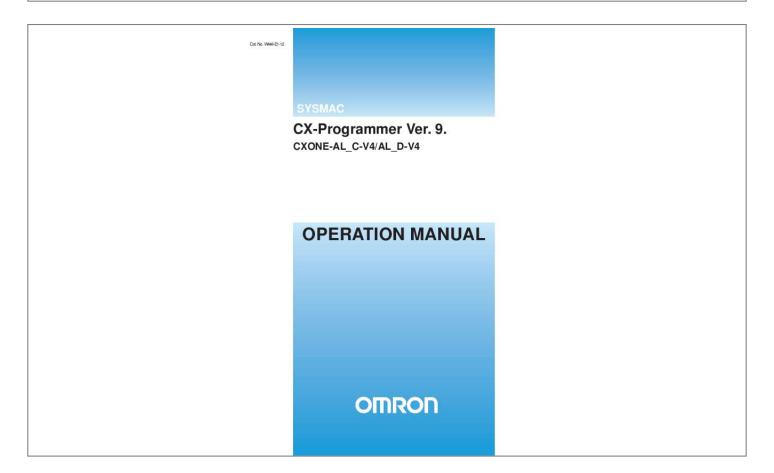# Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for OMRON CX-PROGRAMMER V9. You'll find the answers to all your questions on the OMRON CX-PROGRAMMER V9 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual OMRON CX-PROGRAMMER V9
User guide OMRON CX-PROGRAMMER V9
Operating instructions OMRON CX-PROGRAMMER V9
Instructions for use OMRON CX-PROGRAMMER V9
Instruction manual OMRON CX-PROGRAMMER V9

Cat.No. W446-E1-12

SYSMAC

CX-Programmer Ver. 9.
CXONE-AL_C-V4/AL_D-V4

OPERATION MANUAL

OMRON

Manual abstract:

No. W446-E1-12 SYSMAC CX-Programmer Ver. @@9.@ CXONE-AL@@C-V4/AL@@@@@@@Note: References within each part are references to the pages or chapters within that part. · Related Manual For details on the function block functions and ST programming, refer to the CX-Programmer Operation Manual Function Blocks and Structured Text (Cat. No. W447). For details on the SFC programming functions, refer to the CX-Programmer Operation Manual SFC (Cat. No. W469).

For details on procedures for installing the CX-Programmer from the CX-One FA Integrated Tool Package, refer to the CX-One Setup Manual provided with CX-One. Cat. No. W463 Model CXONE-AL@@C-V4/ AL@@D-V4 Manual name CX-One Setup Manual Contents Installation and overview of CX-One FA Integrated Tool Package. 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 chapter in its entirety and be sure you understand the information provided in the chapter and related chapters before attempting any of the procedures or operations given. CX-Programmer_Page (ii) OMRON CX-Programmer Operation Manual 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 (1) The warranty period for the Software is one year from either the date of purchase or the date on which the Software is delivered to the specified location. (2) If the User discovers a defect in the Software (i.

e., substantial non-conformity with the manual), and returns it to OMRON within the above warranty period, OMRON will replace the Software without charge by offering media or downloading services from the Internet. And if the User discovers a defect in the media which is attributable to OMRON and returns the Software to OMRON within the above warranty period, OMRON will replace the defective media without charge. If OMRON is unable to replace the defective media or correct the Software, the liability of OMRON and the User's remedy shall be limited to a refund of the license fee paid to OMRON for the Software. LIMITATIONS OF LIABILITY (1) THE ABOVE WARRANTY SHALL CONSTITUTE THE USER'S SOLE AND EXCLUSIVE REMEDIES AGAINST OMRON AND THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL OMRON BE LIABLE FOR ANY LOST PROFITS OR OTHER INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF USE OF THE SOFTWARE. (2) OMRON SHALL ASSUME NO LIABILITY FOR DEFECTS IN THE SOFTWARE BASED ON MODIFICATION OR ALTERATION OF THE SOFTWARE BY THE USER OR ANY THIRD PARTY. (3) OMRON SHALL ASSUME NO LIABILITY FOR SOFTWARE DEVELOPED BY THE USER OR ANY THIRD PARTY BASED ON THE SOFTWARE OR ANY CONSEQUENCE THEREOF. CX-Programmer_Page (iv) OMRON CX-Programmer Operation Manual Application Considerations SUITABILITY FOR USE THE USER SHALL NOT USE THE SOFTWARE FOR A PURPOSE THAT IS NOT DESCRIBED IN THE ATTACHED USER MANUAL. CX-Programmer_Page (v) OMRON CX-Programmer Operation Manual Disclaimers CHANGE IN SPECIFICATIONS The software specifications and accessories may be changed at any time based on improvements or for other reasons.

EXTENT OF SERVICE The license fee of the Software does not include service costs, such as dispatching technical staff. ERRORS AND OMISSIONS The information in this manual has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions. CX-Programmer_Page (vi) OMRON CX-Programmer Operation Manual Precautions Intended Audience This manual is intended for the following personnel, who must also have knowledge of electrical systems (an electrical engineer or the equivalent). · Personnel in charge of installing FA systems. · Personnel in charge of designing FA systems. · Personnel in charge of managing FA systems and facilities. General Precautions The user must operate the product according to the performance specifications described in the operation manuals. 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 programming and operating the Unit.

Be sure to read this manual before attempting to use the Unit and keep this manual close at hand for reference during operation. WARNING It is extremely important that a PLC and all PLC 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 PLC System to the above-mentioned applications. Safety Precautions WARNING Confirm safety sufficiently before transferring I/O memory area status from the CX-Programmer to the PLC. The devices connected to Output Units may malfunction, regardless of the operating mode of the CPU Unit.

Caution is required in respect to the following functions. · Transferring from the CX-Programmer to real I/O (CIO Area) in the CPU Unit using the PLC Memory window. · Transferring from file memory to real I/O (CIO Area) in the CPU Unit using the Memory Card window. CX-Programmer_Page (vii) OMRON CX-Programmer Operation Manual Observe the following precautions when using the PLC Backup Tool. · Sufficiently check the data that is selected for restoring before performing the next step.

If the correct data is not restored, unexpected operation may occur in the controlled system after the data is restored. · Some Special I/O Units and CPU Bus Units operate with parameters that are stored in the CPU Unit. If one of these Units is selected for backup, restrictions will be displayed in the Comments Area of the Backup from PLC Dialog Box. Confirm the restrictions, and always select the Special I/O Unit or CPU Bus Unit together with the CPU Unit when backing up or restoring data. If the data from both Units is not backed up or restored together, unexpected operation may occur in the controlled system. · If there are any backup restrictions for the Units to which data is being restored, the restrictions will be displayed in the Comments Area of the Backup from PLC Dialog Box.

Confirm the restrictions, and always take the required measures. If required measures are not taken, unexpected operation may occur in the controlled system after the data is restored. · Forced status can be backed up, but it cannot be restored. If you restored data that contained forced status, use the CX-Programmer after restoring the data to force-set or force-reset bits as required.

If required bits are not force-set or force-reset, differences in the forced status in memory may cause unexpected operation of the controlled system. · Confirm that stopping PLC operation will not create any problems before restoring data during PLC operation. If the PLC stops at an unanticipated time, unexpected operation may occur in the controlled system. · Always turn the power supply to the PLC OFF and then ON after restoring data. If the power supply is not turned OFF and then ON, memory in the PLC may not be updated to the restored data, which may cause unexpected operation of the controlled system. Observe the following precaution when specifying a symbol or word address for an array variable index in a ladder program or when specifying a symbol for an array variable index in an ST program. When using a symbol or address to indirectly specify the element number of an array variable, be sure that the resulting address is not outside the memory area that contains the first word in the array. For example, use a symbol comparison instruction or an IF statement to ensure that processing is performed only when the memory area is not exceeded. If an element number that exceeds the memory area is specified, data in another memory area will be read or written, possibly resulting in unexpected operation. Observe the following precaution when specifying a symbol or word address for an offset in a ladder program.

When using a symbol or address to indirectly specify an offset for a memory address, be sure that the resulting address is not outside the memory area that contains original address. For example, use a symbol comparison instruction to ensure that processing is performed only when the memory area is not exceeded. If the final address (i.e., the original address plus the specified offset) exceeds the memory area, data in another memory area will be read or written, possibly resulting in unexpected operation.

WARNING Caution Caution CX-Programmer_Page (viii) OMRON CX-Programmer Operation Manual Confirm safety at the destination node before transferring a program to another node or changing contents of the I/O memory area. Doing either of these without confirming safety may result in injury. Execute online edit only after confirming that no adverse effects will be caused by extending the cycle time. Otherwise, the input signals may not be readable. If synchronous unit operation is being used, perform online editing only after confirming that an increased synchronous processing time will not affect the operation of the main and slave axes.

Confirm safety sufficiently before monitoring power flow and present value status in the Ladder Section window or when monitoring present values in the Watch window. If force-set/reset or set/reset operations are inadvertently performed by pressing short-cut keys, the devices connected to Output Units may malfunction, regardless of the operating mode of the CPU Unit. Caution is required when connecting peripheral devices, such as a personal computer, to the PLC when Units with non-isolated power supplies, such as the CS1W-CLK12/CLK52(-V1), that are connected to an external power supply are mounted to the PLC. If the 24-V side is grounded on the external power supply, a short will be created if the 0-V side of the peripheral device is grounded. When connecting peripheral devices, either ground the 0-V side of the external power supply or do not ground the external power supply at all. Non-isolated power supplies Caution Caution Caution Caution Caution 24-VDC External power supply 0-VDC 0-VDC Cable 0-VDC FG FG FG Controller Link unit CPU unit Peripheral devices FG CX-Programmer_Page (ix) OMRON CX-Programmer Operation Manual Application Precaution Observe the following precautions when using the CX-Programmer. · Observe the following precautions before starting the CX-Programmer. · Exit all applications not directly related to the CX-Programmer. Particularly exit any software such as screen savers, virus checkers, email or other communications software, and schedulers or other applications that start up periodically or automatically. · Disable sharing hard disks, printers, or other devices with other computers on any network.

· With some notebook computers, the RS-232C port is allocated to a modem or an infrared port by default. Follow the instructions in documentation for your computer and enable using the RS-232C port as a normal seata link method are determined according to the data link setting in the startup node. In the startup node, set a data link table in the case of manual setting and data link automatic setting parameters in the case of automatic setting. If the settings are incorrect, the data link will not start. · Check the following items before starting data links. If incorrect data link tables or parameters are set, injury may result due to unexpected operation of the system. Even if the correct data link tables and parameters have been set, do not start or stop data links before verifying that there will be no adverse influence on the system. (1) Manually Set Data Links Check the data link tables in each node participating in the data link to see that they are correct. Be sure that data link tables are deleted from nodes that are not participating in the data links. (2) Automatically Set Data Links Be sure that the correct DM parameters have been set in the data link startup node.

· CPU Bus Units will be automatically restarted when routing tables are transferred from a Programming Device to the CPU Unit. Resetting is required to use the new tables. Confirm that restarting the CPU Bus Units will not adversely affect system operation before transferring routing tables. · When Special I/O Unit or CPU Unit settings are performed in the I/O Table Window and then transferred from the PLC Memory Window, the following warning will be displayed if the allocated DM Area/CIO Area addresses set for Special I/O Units or CPU Bus Units in the I/O Table Window on the computer overlap with the PLC data table addresses. Unless the CPU Bus Unit or Special I/O Unit settings have been previously transferred to the CPU Unit and the allocated DM Area/CIO Area data in the PLC data table for Special I/O Units or CPU Bus Units is to be overwritten, always click the No Button, shift the address, and repeat the transfer procedure.

· CPU Bus Unit and Special I/O Unit settings are not checked for logical consistency. Be very careful of the logical consisting of the overall settings when making any setting that affects other settings, e.

g., settings that enable or disable other settings. Transfer the Special I/O Unit or CPU Bus Unit settings to the PLC and then start operation, being aware that any logical inconsistencies may produce unexpected operation.

· For example, if one setting selects either user settings or default settings and is set to use the default settings, it will not automatically change to enable user settings even if the related user settings are made. To use the user settings, they will have to be enabled manually and specifically in the setting that selects either user settings or default settings. CX-Programmer_Page (xii) Unit Versions of CS/CJ/CP-series CPU Units Unit Versions A "unit version" has been introduced to manage CPU Units in the CS/CJ/CP Series according to differences in functionality accompanying Unit upgrades. This applies to the CJ2H, CJ2M, CS1-H, CJ1-H, CJ1M, CS1D, CP1H, CP1L, and CP1E CPU Units. Notation of Unit Versions on Products The unit version is given to the right of the lot number on the nameplate of the products for which unit versions are being managed, as shown below. CS/CJ/CP-series CPU Unit Produce nameplate CS1H-CPU67H CPU UNIT Lot No. Unit version Example for unit version 3.0 Lot No. 040715 0000 Ver.3.

0 OMRON Corporation MADE IN JAPAN · CS1-H, CJ1-H, and CJ1M CPU Units (except for low-end models) manufactured on or before November 4, 2003 do not have a unit version given on the CPU Unit (i.e., the location for the unit version shown above is blank). · The unit version of the CJ1-H-R CPU Units begins at version 4.0. · The unit version of the CS1-H, CJ1-H, and CJ1M CPU Units, as well as the CS1D CPU Units for Single-CPU Systems, begins at version 2.0. · The unit version of the CS1D CPU Units for Duplex-CPU Systems begins at version 1.1. · The unit version of the CP1H/CP1L/CP1E CPU Units begins at version 1.

0, except for the CP1H-Y@@@@-@, for which the unit version begins at version 1.1. · CPU Units for which a unit version is not given are called Pre-Ver. @.@ CPU Units, such as Pre-Ver.

2.0 CPU Units and Pre-Ver. 1.1 CPU Units. Confirming Unit Versions with Support Software CX-Programmer version 4.

0 can be used to confirm the unit version using one of the following two methods. · Using the PLC Information · Using the Unit Manufacturing Information (This method can be used for Special I/O Units and CPU Bus Units as well.) Note CX-Programmer version 3.3 or lower cannot be used to confirm unit versions. PLC Information · If you know the device type and CPU type, select them in the Change PLC Dialog Box, go online, and select PLC - Edit - Information from the menus. · If you don't know the device type and CPU type, but are connected directly to the CPU Unit on a serial line, select PLC - Auto Online to go online, and then select PLC - Edit - Information from the menus. In either case, the following PLC Information Dialog Box will be displayed. CX-Programmer_Page (xiii) Unit version Use the above display to confirm the unit version of the CPU Unit. Unit Manufacturing Information In the IO Table Window, right-click and select Unit Manufacturing information - CPU Unit. The following Unit Manufacturing information Dialog Box will be displayed Unit version Use the above display to confirm the unit version of the CPU Unit connected online.

CX-Programmer_Page (xiv) Using the Unit Version Labels The following unit version labels are provided with the CPU Unit. These labels can be attached to the front of previous CPU Units to differentiate between CPU Units of different unit versions. Unit Version Notation In this manual, the unit version of a CPU Unit is given as shown in the following table. Product nameplate CPU Units on which no unit version is given Units on which a version is given (Ver. @.@) Lot No. XXXXXX XXXX OMRON Corporation MADE IN JAPAN Lot No. XXXXXX XXXX Ver.@.@ Meaning Designating individual CPU Units (e. g., the CS1H-CPU67H) Designating groups of CPU Units (e.g., the CS1-H CPU Units) Designating an entire series of CPU Units (e.g. , the CS-series CPU Units) Pre-Ver. 2.0 CS1-H CPU Units CS1H-CPU67H CPU Unit Ver. @.@ Pre-Ver.

2.0 CS1-H CPU Units CS1-H CPU Units Ver. @.@ Pre-Ver. 2.0 CS-series CPU Units CS-series CPU Units Ver. @.@ CX-Programmer_Page (xv) Unit Versions and Lot Numbers Series Model Earlier Oct. 2003 Nov. 2003 Dec.

2003 Data of manufacture Jul. 2004 Feb. 2005 Nov. 2005 July 2006 July 2007 June 2008 Dec. 2008 May 2009 Dec. 2009 Feb 2010 July 2010 CS Series CS1 CPU Units CS1@-C PU@@ No unit version CS1-V1 CPU Units CS1@-CPU @@-V1 No unit version CS1-H CPU Units CS1@-CPU @@H No unit version CPU Units Ver. 2.0 (Lot No.: 031105 on) CPU Units Ver. 3.

0 (Lot No.: 040622 on) CPU Units Ver. 4.0 CS1D CPU Units CPU Units for DuplexCPU System CPU Units for Single-C PU System CS1D-CPU @@H No unit version CPU Units Ver. 1.

1 (Lot No.: 031120 on) CPU Units Ver. 1.2 CS1D-CPU@ @S CPU Units Ver. 2.

0 (Lot No.: 031215 on) CJ Series CJ2 CPU Units CJ2H-CPU6@(-EIP) CPU Unit Ver. 1.0 CPU Unit Ver. 1.1 CPU Unit Ver. 1.2 CPU Unit Ver. 1.3 CJ2M CPU Units CJ2M-CPU@ @ CPU Unit CPU Unit Ver.

1.0 Ver. 2.0 CJ1 CPU Units CJ1G-C PU@@ No unit version CJ1-H CPU Units CJ1@-CPU @@ H CJ1GCPU@@P (Ver. 3.0 or higher only) CJ1H-CPU@ @ H-R No unit version CPU Units Ver. 2.0 (Lot No.: 0301105 on) CPU Units Ver. 3.

0 (Lot No.: 040623 on) CPU Units Ver. 4.0 CPU Units Ver. 4.

0 CJ1M CPU Units except low-end models CJ1M-C PU@@ No unit version CPU Units Ver. 2.0 (Lot No.: 0301105 on) CPU Units Ver. 3.

0 (Lot No.: 040624 on) CPU Units Ver. 4.0 CJ1M CPU Units, low-end models CJ1M-CPU 11/21 CPU Units Ver. 2.0 (Lot No.: 031002 on) CPU Units Ver. 3.0 (Lot No.: 040629 on) CPU Units Ver.

4.0 CP Series CP1H CPU Units CP1H-X@@ @@-@ CP1H-XA@@ @@-@ CP1H-Y@@ @@-@ CPU Units Ver. 1.0 or 1.1 CPU Units Ver. 1.1 CP1L CPU Units CP1L-M@@@ @-@ CPU Units Ver. 1.0 CP1L-L@@@ @-@ CP1E CPU Units CP1E-E@@ D@-A CP1E-N@@D @-@ CXONE-AL@@ C-E CPU Units Ver. 1.

0 Support Software CX-One Ver. 1.0 Ver. 1.1 Ver.

2.0 Ver. 2.1 Ver. 3.

0 Ver. 3.1 Ver. 3.2 Ver. 4.0 CX-Programmer_Page (xvi) Function Support by Unit Version CS1-H CPU Units (CS1@-CPU@@H) Function Unit version Pre-Ver. 2.0 CPU Units Downloading and Uploading Individual Tasks Improved Read Protection Using Passwords Write Protection from FINS Commands Sent to CPU Units via Networks Online Network Connections without I/O Tables Communications through a Maximum of 8 Network Levels Connecting Online to PLCs via NS-series PTs Setting First Slot Words Automatic Transfers at Power ON without a Parameter File Automatic Detection of I/O Allocation Method for Automatic Transfer at Power ON Operation Start/End Times New Application Instructions MILH, MILR, MILC =DT, <>DT, <DT, <=DT, >DT, >=DT BCMP2 GRY TPO DSW, TKY, HKY, MTR, 7SEG EXPLT, EGATR, ESATR, ECHRD, ECHWR --------OK from lot number 030201 ------OK OK OK OK OK OK OK OK OK ------OK from lot number 030201 OK for up to 8 groups ----OK OK OK OK for up to 64 groups OK --------CPU Units Ver.

2.

0 or later OK OK OK Reading/Writing CPU Bus Units with IORD/IOWR OK from lot number 030418 PRV2 --- CX-Programmer_Page (xvii) CS1D CPU Units Function CS1D CPU Units for Duplex-CPU Systems (CS1D-CPU@@H) CS1D CPU Units for Single-CPU Systems (CS1D-CPU@@S) CPU Unit Ver. 2.0 or later --OK OK OK OK OK OK OK Pre-Ver. 1.1 CPU Units Functions unique to CS1D CPU Units Duplex CPU Units Online Unit Replacement Duplex Power Supply Units Duplex Controller Link Units Duplex Ethernet Units Downloading and Uploading Individual Tasks Improved Read Protection Using Passwords Write Protection from FINS Commands Sent to CPU Units via Networks Online Network Connections without I/O Tables Communications through a Maximum of 8 Network Levels Connecting Online to PLCs via NS-series PTs Setting First Slot Words Automatic Transfers at Power ON without a Parameter File Automatic Detection of I/O Allocation Method for Automatic Transfer at Power ON Operation Start/End Times New Application Instructions MILH, MILR, MILC ----------------OK OK OK OK --------- CPU Unit Ver. 1.1 OK OK OK OK OK ------- --- OK --- OK --- OK ----- OK for up to 64 groups OK --- --- OK ------------------- OK OK OK OK OK OK OK OK OK --- =DT, <>DT, <DT, <=DT, >DT, -->=DT BCMP2 GRY TPO ------- DSW, TKY, HKY, MTR, 7SEG --EXPLT, EGATR, ESATR, ECHRD, ECHWR Reading/Writing CPU Bus Units with IORD/IOWR PRV2 ------- CX-Programmer_Page (xviii) CJ1-H/CJ1M CPU Units Function CJ1-H CPU Units (CJ1H-CPU@@H-R) (CJ1@-CPU@@H) (CJ1G-CPU@@P) Pre-Ver. 2.0 CPU Units Downloading and Uploading Individual Tasks Improved Read Protection Using Passwords Write Protection from FINS Commands Sent to CPU Units via Networks Online Network Connections without I/O Tables ------CPU Units Ver. 2.

0 OK OK OK CJ1M CPU Units CJ1M-CPU12/13/22/23 CJ1MCPU11/21 CPU Units Ver. 2.0 or later OK OK OK Pre-Ver. 2.0 CPU Units ------- CPU Units Ver.

2.0 OK OK OK OK OK, but only if I/O table allocation at power ON is set OK for up to 8 groups OK for up to 64 groups OK OK, but only if I/O table allocation at power ON is set OK for up to 8 groups OK for up to 64 groups OK Communications through a Maximum of 8 Network Levels Connecting Online to PLCs via NS-series PTs Setting First Slot Words Automatic Transfers at Power ON without a Parameter File Automatic Detection of I/O Allocation Method for Automatic Transfer at Power ON Operation Start/End Times MILH, MILR, MILC OK for up to 64 groups OK OK OK OK OK from lot OK number 030201 ------OK OK OK OK from lot OK number 030201 ------OK OK OK --- OK OK OK ------- OK OK OK OK OK OK --New Application Instructions =DT, <>DT, <DT, --<=DT, >DT, >=DT BCMP2 GRY TPO --- OK OK OK OK OK OK OK OK OK from lot OK number 030201 --OK OK OK OK from lot OK number 030201 ------OK OK OK DSW, TKY, HKY, --MTR, 7SEG EXPLT, EGATR, --ESATR, ECHRD, ECHWR Reading/Writing CPU Bus Units with IORD/IOWR PRV2 --- OK --- OK OK --- --- --- OK, but only for OK, but only for models with models with built-in I/O built-in I/O CX-Programmer_Page (xix) Functions Supported by Unit Version 3.0 or Later CS1-H CPU Units (CS1@-CPU@@H) Function Pre-Ver. 2.0, Ver.

2.0 Function blocks (supported for CX-Programmer Ver. 5.0 or higher) Serial Gateway (converting FINS commands to CompoWay/F commands at the built-in serial port) Comment memory (in internal flash memory) Expanded simple backup data New application instructions TXDU(256), RXDU(255) (support no-protocol communications with Serial Communications Units with unit version 1.2 or later) Model conversion instructions: XFERC(565), DISTC(566), COLLC(567), MOVBC(568), BCNTC(621) Special function block instructions: GETID(286) Additional instruction functions TXD(235) and RXD(236) instructions (support no-protocol communications with Serial Communications Boards with unit version 1.2 or later) ASCII conversion instructions (NUMBER-TO-ASCII and ASCIITO- NUMBER) Text File Write (TWRIT) Online editing of function blocks Input-output variables are supported. (Input-output variables can be specified in arrays.) The STRING data type and textstring processing functions are supported in ST language. Using ST language programming in tasks ----------OK OK OK OK OK Unit version Ver. 3.

0 OK OK OK OK OK Ver. 4.0 (See note.) --- OK OK ----- OK OK OK OK New application instructions Improved function block (FB) functions --- --- OK ----- ----- OK OK --- --- OK --- --- OK with CXProgrammer Ver. 7.2 or higher OK with CXProgrammer Ver. 7.2 or higher Using SFC programming in tasks --- --- Note: CX-Programmer version 7.0 or higher is required to use functions added for unit version 4.0.

Additional functions are supported if CX-Programmer version 7.2 or higher is used. CS1D CPU Units Unit version 3.0 (Ver. 3.

0) is not supported. CX-Programmer_Page (xx) CJ1-H/CJ1M CPU Units (CJ1@-CPU@@H, CJ1M-CPU@@) Function Pre-Ver. 2.0, Ver. 2.

0 Function blocks (supported for CX-Programmer Ver. 5.0 or higher) Serial Gateway (converting FINS commands to CompoWay/F commands at the built-in serial port) Comment memory (in internal flash memory) Expanded simple backup data Additional instruction functions PRV(881) and PRV2(883) instructions: Added high-frequency calculation methods for calculating pulse frequency. (CJ1M CPU Units only) TXDU(256), RXDU(255) (support no-protocol communications with Serial Communications Units with unit version 1.2 or later) Model conversion instructions: XFERC(565), DISTC(566), COLLC(567), MOVBC(568), BCNTC(621) Special function block instructions: GETID(286) Additional instruction functions TXD(235) and RXD(236) instructions (support no-protocol communications with Serial Communications Boards with unit version 1.2 or later) ASCII conversion instructions (NUMBER-To-ASCII and ASCIITO NUMBER) Online editing of function blocks Input-output variables are supported. (Input-output variables can be specified in arrays.) The STRING data type and textstring processing functions are supported in ST language. Using ST language programming in tasks ----OK OK OK OK ----------OK OK OK OK OK Unit version Ver. 3.

0 OK OK OK OK OK Ver. 4.0 (See note.) New application instructions --- OK OK --- OK OK New application instructions Improved function block (FB) functions --- --- OK ----- ----- OK OK --- --- OK --- --- OK with CXProgrammer Ver. 7.2 or higher OK with CXProgrammer Ver. 7.2 or higher Using SFC programming in tasks --- --- Note: CX-Programmer version 7.0 or higher is required to use functions added for unit version 4.0.

Additional functions are supported if CX-Programmer version 7.2 or higher is used. CX-Programmer_Page (xxi) Functions Supported by Unit Version for CJ2 CPU Units (CJ2H-CPU6@-EIP, CJ2HCPU6@) Functions Added for Unit Version 1.3 CX-Programmer version 9.

1 or higher is required to use functions added for unit version 1.
3. CPU Units Models Unit version Function Special instructions for specific CPU Bus Units CJ1W-NC281/NC481/NC881 Position Control Units: PCU HIGH-SPEED POSITIONING (NCDMV(218)) CJ1W-NC281/NC481/NC881 Position Control Units: PCU POSITIONING TRIGGER (NCDTR(219)) New special instructions SIGNED AREA RANGE COMPARE (ZCPS(117)) DOUBLE SIGNED AREA RANGE COMPARE (ZCPSL(118)) Supported. CJ2H CPU Units CJ2H-CPU6@-EIP CJ2H-CPU6@ Unit version 1.3 Supported. Supported. Supported. Unit Version 1.2 or Later CX-Programmer version 8.3 or higher must be used to enable using the functions added for unit version 1.2. Unit Model Unit version Item EM Area force-setting/resetting Supported. CJ2H CPU Unit CJ2H-CPU6@-EIP CJ2H-CPU6@ Unit version 1.2 Unit Version 1.1 or Later CX-Programmer version 8.1 or higher must be used to enable using the functions added for unit version 1.

1. Unit Model Unit version Item High-speed interrupt function Decreased overhead time for interrupt tasks Minimum interval setting of 0.1 ms for Scheduled Interrupt Task Changing the minimum cycle time setting in MONITOR mode Synchronous unit operation Supported. Not supported. CJ2H CPU Unit CJ2H-CPU6@-EIP CJ2H-CPU6@ Unit version 1.1 Unit version 1.0 Supported. Supported. Not supported. Not supported.
CX-Programmer_Page (xxii) Unit Version 1.0 All functions that are supported by unit version 4.0 or later of the CJ1 CPU Units are supported by unit version 1.0 of the CJ2 CPU Units. CX-Programmer version 8.
0 or higher must be used to enable using unit version 1.0 of the CJ2 CPU Units. Functions Supported by Unit Version for CJ2M CPU Units Functions Added for Unit Version 2.0 CX-Programmer version 9.12 or higher is required to use the following function added for unit version 2.
0. · Functions Added for Unit Version 1.0 The functions supported by unit versions 1.0 to 1.3 of the CJ2H CPU Units are supported except for the following functions from unit version 1.1. · · High-speed interrupt function Synchronous unit operation Support of the CJ2M-MD211/212 Pulse I/O Modules. CX-Programmer_Page (xxiii) Functions Supported by Unit Version for CP-series CPU Units Functions Supported by Unit Version 1.0 and 1.1 Functionality is the same as that for CS/CJ-series CPU Units with unit version 3.

0. The functionality added for CS/CJ-series CPU Unit unit version 4.0 is not supported. CP1H CPU Units · · CX-Programmer version 6.11 or higher is required to use CP1H-X@@@@@/XA@@@@-@ with unit version 1.1 or 1.0. CX-Programmer version 6.20 or higher is required to use CP1H-Y@@@@@ with unit version 1.1.
CPU Unit Model CP1H CPU Unit CP1H-@@@@-@ CP1H-XA@@@@-@ (See note 1.) Unit version Function Pulse outputs Allocated built-in I/O terminals Ver. 1.1 or later 4 axes at 100 kHz Ver. 1.
0 CP1H-Y@@@@-@ (See note 2.) Ver. 1.1 2 axes at 100 kHz 2 axes at 30 kHz 2 axes 100 kHz Special pulse output terminals None 2 axes at 1 kHz Note 1. 2.
3. The unit version for the CP1H-X@@@@-@/XA@@@@-@ begins at 1.0. The unit version for the CP1H-X@@@@-@ begins at 1.1. CX-Programmer version 7.11 or higher is required to use CP1L CPU Units with unit version 1.0. CX-Programmer_Page (xxiv) Unit Versions and Programming Devices CX-Programmer version 4.0 or higher must be used to enable using the functions added for CPU Unit Ver.

2.0. The following tables show the relationship between unit versions and CX-Programmer versions. Unit Versions and Programming Devices for CJ2 CPU Units CPU Unit Functions Required Programming Device CX-Programmer Ver. 7.1 or lower CJ2H-CPU6@-EIP Unit version 1.0 CJ2H-CPU6@-EIP Unit version 1.1 CJ2H-CPU6@ Unit version 1.1 CJ2H-CPU6@-EIP Unit version 1.2 CJ2H-CPU6@ Unit version 1.
2 CJ2H-CPU6@-EIP Unit version 1.3 CJ2H-CPU6@ Unit version 1.3 CJ2M-CPU@@ Unit version 1.0 CJ2M-CPU@@ Unit version 2.0 Functions for unit version 1.
0 Functions added for unit version 1.1 Functions added for unit version 1.1 Functions added for unit version 1.2 Functions added for unit version 1.2 Functions added for unit version 1.
3 Functions added for unit version 1.3 Functions for unit version 1.0 Functions for unit version 2.0 × × × × × × × × × Ver. 8.0 Ver. 8.1 Ver. 8.2 Ver.

8.3 Ver. 9.0 Ver. 9.1 Ver. 9.12 × × × × × × × × × × ×: Cannot be used, : Can be used except for new functions added for unit versions, : Can be used Note 1. It is not necessary to upgrade the version of the CX-Programmer if functionality that was enhanced for the upgrade of the CPU Unit will not be used. 2. CX-Programmer version 8.1 or higher is required to use the functions added for unit version 1.1. The high-speed interrupt function and changing the minimum cycle time setting in MONITOR mode, however, are also supported by CX-Programmer version 8.02.
A Programming Console cannot be used with a CJ2H CPU Unit. 3. CX-Programmer_Page (xxv) Unit Versions and Programming Devices for CPU Units Other Than CJ2 CPU Units CPU Unit Functions Required Programming Device CX-Programmer Ver. 3.3 CS/CJ Series CPU Units, Unit Ver.
4.0 CS/CJ Series CPU Units, Unit Ver. 3.0 CS/CJ Series CPU Units, Unit Ver. 2.0 CS1D CPU Units for Single-CPU Systems, Unit Ver. 2.0 CS1D CPU Units for Duplex-CPU Systems, Unit Ver.1.1 Functions added for unit version 4.

0 Functions added for unit version 3.0 Functions added for unit version 2.0 Functions added for unit version 2.0 Functions added for unit version 1.1 Ver. 4.0 Ver. 5.0 Ver. 6.
0 Ver. 7.0 Ver. 7.2 Ver.

8.0 or later (See note 4.) ×: Cannot be used, : Can be used except for new functions added for unit versions, : Can be used Note 1. As shown above, there is no need to upgrade to CX-Programmer version 4.0 as long as the functions added for unit version 2.
0 or unit version 1.1 are not used. 2. 3. 4. CX-Programmer version 7.0 or higher is required to use functions added for unit version 4.0. Additional functions are supported if CX-Programmer version 7.2 or higher is used.

Unit version 4.2 of the CJ1H-CPU6@-R is supported only by CX-Programmer version 8.0 or higher. CX-Programmer version 8.0 or higher is required to use unit version 4.2 of the CJ1HCPU6@-R. Unit Versions of CP-series CPU Units and Programming Devices CPU Unit Model Unit version Ver. 1.1 Ver. 1.
0 Ver. 1.1 Ver. 1.0 Ver.
1.0 Ver. 6.11 OK OK ------CX-Programmer version Ver. 6.
20 Ver. 7.11 OK OK OK ----OK OK OK OK --Ver. 8.2 or later OK OK OK OK OK CP1H CPU Units CP1H-X@@@-@ CP1H-XA@@@-@ CP1H-Y@@@-@ CP1L CPU Units CP1E CPU Units CP1L-M@@@-@ CP1L-L@@@-@ CP1E-E@@D@-A CP1E-N@@D@-@ Note 1. Functionality of CP1H CPU Units with unit version 1.0 or 1.0 and CP1L CPU Units with unit version 1.0 is the same as that for CS/CJ-series CPU Units with unit version 3.0.

The functionality added for CS/CJ-series CPU Unit unit version 4.0 is not supported. There is no need to upgrade to CX-Programmer as long as the upgraded

2. CX-Programmer_Page (xxvi) Device Type Setting The unit version does not affect the setting made for the device type on the CX-Programmer. Select the device type as shown in the following table regardless of the unit version of the CPU Unit. Series CS Series CPU Unit group CS1-H CPU Units CS1D CPU Units for Duplex-CPU Systems CS1D CPU Units for Single-CPU Systems CJ Series CJ2H CPU Units CJ2M CPU Units CJ1-H CPU Units CPU Unit model CS1G-CPU@@H CS1H-CPU@@H CS1D-CPU@@H CS1D-CPU@@S CJ2M-CPU@@ CJ1G-CPU@@H CJ1G- CPU@@P CJ1H-CPU@@HR CJ1H- CPU@@H CJ1M CPU Units CP Series CP1H CPU Units CJ1M-CPU@@ CP1H-X@@@@-@ CP1H-XA@@@@-@ CP1H-Y@@@@-@ CP1L- M@@@@-@ CP1L-L@@@@-@ CP1E-E@@D@-A CP1E-N@@D@-@ CJ1M CP1H Device type setting on CX-Programmer CS1G-H CS1H-H CS1D-H (or CS1H-H) CS1D-S CJ2M CJ1G-H CJ2H-CPU6@(-EIP) CJ2H CP1L CPU Units CP1E CPU Units CP1L CP1E Note Device types not supported by the CX-Programmer version that is being used will not be displayed on the pull-down list of the Device type Field. CX-Programmer_Page (xxvii) Troubleshooting Problems with Unit Versions on the CX-Programmer Problem Cause An attempt was made using CXProgrammer version 4.0 or higher to download a program containing instructions supported only by CPU Units Ver. 2.

0 or later to a Pre-Ver. 2.0 CPU Units. Solution Check the program or change the CPU Unit being downloaded to a CPU Unit Ver. 2.

0 or later. After the above message is displayed, a compiling error will be displayed on the Compile Tab Page in the Output Window. An attempt was made using CXProgrammer version 4.0 or higher to download a PLC Setup containing settings supported only by CPU Units Ver. 2.

0 or later (i.e., not set to their default values) to a Pre-Ver. 2.0 CPU Units. "????" is displayed in a program transferred from the CX-Programmer version 3.3 or PLC to the CX-Programmer. lower was used to upload a program containing instructions supported only by CPU Units Ver. 2.0 or later from a CPU Unit Ver.

2.0 or later. Check the settings in the PLC Setup or change the CPU Unit being downloaded to a CPU Unit Ver. 2.0 or later. The new instructions cannot be uploaded using CXProgrammer version 3.3 or lower. Use CX-Programmer version 4.0 or higher. CX-Programmer_Page (xxviii) PART 1: CX-Programmer OMRON PART 1: CX-Programmer Notice OMRON products are manufactured for use according to proper procedures by a qualified operator and only for the purposes described in this manual.

The following conventions are used to indicate and classify precautions in this manual. Always heed the information provided in them. Failure to heed precautions can result in injury to people or damage to the product. DANGER WARNING Caution Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. Additionally, there may be severe property damage.

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. Additionally, there may be severe property damage. Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, or property damage. 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.

The abbreviation "PLC" means Programmable Logic Controller and is not used as an abbreviation for anything else. CX-Programmer_Page (i) OMRON PART 1: CX-Programmer Visual Aids The following headings appear in the left column of the manual to help you locate different types of information. Indicates information of particular interest for efficient and convenient operation of the product. 1, 2, 3... Indicates lists of one sort or another, such as procedures, checklists etc. Represents a shortcut on the Toolbar to one of the options available on the menu of the same window. OMRON, 2005 All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, or by any means, mechanical, electronic, photocopying, recording, or otherwise, without the prior written permission of OMRON.

All copyright and trademarks acknowledged. No patent liability is assumed with respect to the use of the information contained herein. Moreover, because OMRON is constantly striving to improve its high-quality products, the information contained in this manual is subject to change without notice. Every precaution has been taken in the preparation of this manual. Nevertheless, OMRON assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained in this publication. CX-Programmer_Page (ii) OMRON PART 1: CX-Programmer About this Part This part describes the CX-Programmer application and its ability to create and maintain programs for use with OMRON SYSMAC CS/CJ/CP, CV and C PLCs. It does not provide detailed information concerning the PLCs themselves, for this information the commercial manual for the device must be consulted. This part contains the following chapters: · · · Precautions. This portion describes general precautions for using the CX-Programmer (including CX-Server PLC Tools).

Version Upgrade Information. This portion describes the changes that have been made from version 3.0 to version 3.1 of the CX-Programmer. Chapter 1 Technical Specifications.

This chapter describes the CX-Programmer software in general terms and also provides details of the operating environment and minimum configuration necessary for the satisfactory operation of CX-Programmer. Chapter 2 Quick Start Guide. This chapter describes the basic features of CX-Programmer together with a simple tutorial for familiarization purposes. Chapter 3 Project Reference. This describes the features common to two or more parts of CXProgrammer.

Chapter 4 Reference. This chapter introduces the features contained in the Project workspace and discusses their associated commands and features. Chapter 5 Advanced Topics. This chapter discusses the more advanced topics in relation to CXProgrammer. · · · · · · Appendix A Toolbars and Keyboard Shortcuts. This appendix summarizes the toolbar and keyboard shortcuts available from CX-Programmer. A Glossary of Terms and Index are also provided. CX-Programmer_Page (iii) OMRON PART 1: CX-Programmer Version 9.1 Upgrade Information Functionality Improved from Version 9.0 to 9.

1 Compatible PLC Models* The CJ2M CPU Units with unit version 2.0 are supported. The CJ2M-MD211/212 Pulse I/O Modules are available. Improvements on Ethernet Connections* With a CP1E-N30/40/60 or CP1E-NA CPU Unit, Ethernet connections are made available using a CP1W-CIF41 Ethernet Option Board with unit version 2.0. * Functionality improved in version 9.12 over version 9.10. Compatible PLC Models The CJ2M CPU Units are supported.

Select the CJ2M as the PLC model.

CJ2H CPU Units with unit version 1.3 are supported. Improvements to Memory View Function When the CJ2M is selected as the PLC model, function block area usage is displayed. Improvements for Host Link (SYSMAC WAY) Connections When the CP1E is selected as the PLC model, the network type can be set to SYSMAC WAY. Version 9.

0 Upgrade Information Functionality Improved from Version 8.3 to 9.0 Compatible PLC Models The CX-Programmer also supports CP1E-NA20 CPU Units (20-point CPU Units). CP1E-N/E CPU Units with 10, 14, and 60 I/O points are supported. Supported Operating Systems The CX-Programmer will run on Windows 7.

Improvements to Memory View Function When the CP1E is selected as the PLC model, Program Area usage is displayed. Improvements for Host Link (SYSMAC WAY) Connections When the CJ2H is selected as the PLC model, the network type can be set to SYSMAC WAY. Data Structures Supported as Symbol Data Types Previous version (version 8.3) Data structures are not supported. New version (version 9.0) CJ2 CPU Units now support data structures as symbol data types. Enhanced Program Input Functions Previous version (version 8.3) The input mode cannot be changed. New version (version 9.0) A Smart Input Mode is supported that automatically displays suggested instructions and addresses.

The input mode can be changed from a menu or a tool bar. The Address Incremental Copy function can be used to easily create copies of similar circuit structures with offset addresses. When copying circuits to create similar rungs with different addresses, the addresses must be input again. CX-Programmer_Page (iv) OMRON PART 1: CX-Programmer Enhanced User Interface for Menu and Option Settings Previous version (version 8.3) The display configuration for menus and options cannot be changed. New version (version 9.0) Switching to Smart Style Mode is now possible for the menu and option setting style. Smart Style is the same type of menu and option setting function as the one supported in CXProgrammer for CP1E. Either the previous Classic Mode or the new Smart Style Mode can be selected for the menus and options by selecting Tools - Options and then setting the Menu/Options Style on the General Tab Page. Changes to Search/Replace Dialog Boxes Previous version (version 8.

3) Searches can be performed only in the entire PLC or in the data in the current view. The setting for the item to be searched for was very detailed and included bit addresses, address, values (constants/numbers), mnemonics, symbols, and I/O comments. Replacements can be performed only in the entire PLC or in the data in the current view. New version (version 9.0) "Programs" has been added to the search range.

Searched objects have been grouped into addresses, symbol names, and all (text strings). "Programs" has been added to the replacement range. Also, the selected circuits can be set as the replacement range. Searched objects have been grouped into addresses, symbol names, mnemonics, and comments. The setting for the item to be replaced was very detailed and included bit addresses, address, values (constants/numbers), mnemonics, symbols, and I/O comments. Version 8.3 Upgrade Information Functionality Improved from Version 8.2 to 8.3 Compatible PLC Models The functionality improvements are supported for CJ2H CPU Units with unit version 1.2 or later. TIMER and COUNTER Added as Symbol Data Types Previous version (version 8.2) When defining timer numbers and counter numbers as symbols, the following three different symbols had to be registered in the symbols table. 1. Timer numbers and counter numbers specified in instruction operands had to be defined as NUMBER symbols. 2.

Timer and Counter Completion Flags had to be defined as BOOL symbols. 3. Timer and counter present values had to be defined as CHANNEL symbols. Automatically assigning timer and counter numbers in ladder programs was not possible. New version (version 8.3) TIMER and COUNTER symbols are supported so that all of the previous three types of symbols can be managed as one data type. (TIMER and COUNTER are supported only by CJ2H CPU Units with unit version 1.0 or later.) TIMER: Can be used for 1) the timer number, 2) the Timer Completion Flag, and 3) the timer present value. COUNTER: Can be used for 1) the counter number, 2) the Counter Completion Flag, and 3) the counter present value.

Automatic address assignment and layout are supported for TIMER and COUNTER symbols. (TIMER and COUNTER are supported only by CJ2H CPU Units with unit version 1.0 or later.) CX-Programmer_Page (v) OMRON PART 1: CX-Programmer Force-setting/resetting Bits in EM Area Previous version (version 8.2) Bits in the EM Area could be force-set/reset in CJ2H CPU Units only for specific EM Area banks for which automatic address assignment was used.

New version (version 8.3) With CJ2H CPU Units with unit version 1.2 or later, PLC · Memory Allocate · EM Memory Settings can be used to specify the EM Area banks for which bits can be force-set/reset. (The first bank is specified and force-setting/resetting bits is possible in that bank and all banks following it.) This is called the EM Area forcesetting/resetting function.

Searching for Symbol Names and Displaying Usage Locations from Cross-reference Popups Previous version (version 8.2) Searching from cross-reference pop-ups was possible only for address specifications. (To search for symbols, you had to click the Browse button and search for symbol names from the Symbol Search Dialog Box.) New version (version 8.3) Symbol names can be specified directly in crossreference pop-ups to display a list of locations that use the address of that symbol. CX-Programmer_Page (vi) OMRON PART 1: CX-Programmer Version 8.2 Upgrade Information Functionality Improved from Version 8.1 to 8.2 Connecting Online to the PLC through an NV-series PT* Previous version (version 8.1) It was not possible to connect online from the CX-Programmer through an NV-series PT to a PLC connected to the NV-series PT.

New version (version 8.2) It is now possible to connect online from the CXProgrammer through an NV-series PT to a PLC connected to the NV-series PT. *Functionality improved in version 8.21 over version 8.20. CP1E CPU Unit Supported for Connecting Online to a PLC via an NS-series PT Previous version (version 8.1) With a CP1E CPU Unit, it was not possible to connect online from the CX-Programmer through an NS-series PT to a PLC connected to the NSseries PT. New version (version 8.2) With a CP1E-N@@D@-@ CPU Unit, it is now possible to connect online from the CXProgrammer through an NS-series PT to a PLC connected to the NS-series PT. Compatible PLC Models The functionality improvements are supported for CP-series CP1E CPU Units with unit version 1.

0. Online Connection to the PLC via an NS-series PT Previous version (version 8.1) An online connection from the CX-Programmer through an NS-series PT to a PLC connected to the PT was not possible.

New version (version 8.2) An online connection from the CX-Programmer through an NS-series PT to a PLC connected to the PT is possible when the PLC is connected to the PT using a serial connection, Ethernet connection, or Controller Link connection.
CX-Programmer_Page (vii) OMRON PART 1: CX-Programmer Version 8.1 Upgrade Information Functionality Improved from Version 8.0 to 8.1 Compatible PLC Models The functionality improvements are supported for CJ-series CJ2 CPU Units (CJ2H-CPU6@(-EIP)) with unit version 1.1. Support for Synchronous Unit Operation Support has been added for the synchronous unit operation function for a combination of a CJ-series CJ2 CPU Unit (CJ2H-CPU6@ (-EIP)) with unit version 1.1 and CJ-series Position Control Units (CJ1W-NC@@4). Settings and monitoring are now possible for synchronous unit operation. Improved Special I/O Unit and CPU Bus Unit Setup Functionality Multiple dialog boxes can now be opened simultaneously when setting CJ-series Position Control Unit (CJ1W-NC@@4) parameters. In addition, the CAM Data Creation Software (WS02-MOPC2) can be used to convert cam data in a CSV file into data that can be used by a Position Control Unit, and the data can be imported to the PLC memory component of the CX-Programmer. Improved CS/CJ Data Tracing Function ·Improved Trace Settings With support for the synchronous unit operation function of CJ2 CPU Units with unit version 1.1, tracing can now be executed for each synchronous cycle. · Improved Bit Graph Display Bit graphs are displayed according to screen size, and addresses are displayed beside the graphs. CX-Programmer_Page (viii) OMRON PART 1: CX-Programmer Version 8.0 Upgrade Information Functionality Improved from Version 7.

2 to 8.0 Support has been added for the following PLC models as part of the version 7.2 to version 7.3 upgrade. Compatible PLC Models New CP-series CP1L CPU Units The CP-series CP1L CPU Units (CP1L-L10D@-@ and CP1L-M60D@-@) are supported. The following functions have been added or improved as part of the upgrade from version 7.3 to 8.0. Compatible PLC Models CJ-series CJ2 CPU Units The CJ-series CJ2 CPU Units (CJ2H-CPU6@-EIP) are supported. · EtherNet/IP Connection is possible to the CJ2H-CPU6@-EIP and EtherNet/IP Units.
· New Ladder Programming Instructions The new instructions for the CJ2 CPU Units can be used, including the Tracking Instructions and Data Search/Sort Instructions. Improved Data Trace Function Overhaul of Data Tracing Function for CS/CJ-series PLCs If a CJ2 CPU Unit is used, long-term continuous data tracing is possible. Operations have been improved, including zooming in and out of trace results graphs and adjusting offsets. Trace results can also be printed or saved as bit maps. PLC Backups Data from the CPU Unit, Special I/O Units, and CPU Bus Units can be backed up as a batch from a personal computer.
The backup data can be compared or restored as a batch, or the data for only selected Units can be restored. CX-Programmer_Page (ix) OMRON PART 1: CX-Programmer Improvements in Programming · Symbols in Array Variable Subscripts. Previous version (version 7.2) Symbols could be used for array variable subscripts only inside function blocks. New version (version 8.
0) With a CJ2 CPU Unit, symbols can be used for array variable subscripts in ladder diagram programming in tasks. · Address Offsets Previous version (version 7.2) New version (version 8.0) With a CJ2 CPU Unit, an offset value can be input to offset a specific bit or word address in ladder diagram programming. · DM/EM Bit Addresses Previous version (version 7.2) Only word addresses could be used in the EM and DM Areas. New version (version 8.0) With a CJ2 CPU Unit, bit addresses can be specified in the EM and DM Areas. Improvements to Online Functions With a CJ2 CPU Unit, you can easily connect to a PLC on an EtherNet/IP network. Improvements to Monitoring When registering an array variable in the Watch Window, it is now possible to register and monitor a selected range of array elements.

Improvements to Symbol Tables It is now possible to edit data items (i.e., arrange or delete) when copying and pasting variable table data via the clipboard from external applications. It is also possible to set the contents of symbol table data to be copied to the external application in advance using option settings. Other Improvements Previous version (version 7.2) The error log of the CPU Unit only displayed the error code. New version (version 8.0) In the error log of the CPU Unit, a code which gives more detailed information about the error is displayed in addition to the error code. CX-Programmer_Page (x) OMRON PART 1: CX-Programmer Version 7.2 Upgrade Information Functionality Improved from Version 7.
0 to Version 7.2 Support has been added for the following PLC models as part of the version 7.0 to version 7.10 upgrade. Compatible PLC Models The high-speed CJ1-H-R CPU Units (CJ1-CPU@@H-R) are supported.
Support has been added for the following PLC models as part of the upgrade from version 7.10 to 7.11. Compatible PLC Models The CP-series CP1L CPU Units (CP1L-M and CP1L-L) are supported. The following functions have been added or improved as part of the upgrade from version 7.
11 to 7.2. Improved IEC 61131-3 Language Support Support has been strengthened for the ST and SFC languages, which are IEC 61131-3 languages. Ladder, ST, and SFC programs can be combined freely, so the user program can be written in the language most appropriate for the required processing. Using the most appropriate language can reduce program development time and simplify programming. · Support for ST Language Programming in Tasks Previous version (version 7.0) The ST language could be used only in function blocks. New version (version 7.2) The ST language can be used in programs other than function blocks. (ST programs can be allocated to tasks.

) Different languages can be used in a single user program, which allows numerical processing and string processing to be written in ST programs, while other processing is written in ladder or SFC programs. Note: The ST language is supported only in CS/CJ-series CPU Units with unit version 4.0 or later. It is not supported in CPseries CPU Units. · Support for SFC Language Programming in Tasks Previous version (version 7.0) The SFC language could not be used. New version (version 7.2) The SFC language can be used in programs. (SFC programs can be allocated to tasks.) Different languages can be used in a single user program, which allows the overall system processing to be written in SFC programs, while other processing is written in ladder or ST programs. Note: The SFC language is supported only in CS/CJ-series CPU Units with unit version 4.0 or later. It is not supported in CPseries CPU Units. CX-Programmer_Page (xi) OMRON PART 1: CX-Programmer · Support for Array Variables in Ladder, ST, and SFC Programs Previous version (version 7.

0) Array variables could be used for internal variables and input-output variables in a function block's algorithm, but array variables could not be used in programs (tasks).

New version (version 7.2) Array variables can be specified even in programs (tasks) written in ladder, ST, or SFC language. This feature allows multiple variables with the same data characteristics to be managed as a group. · Comparing Function Block Definitions Previous version (version 7.0) Function block definitions could not be compared.

New version (version 7.2) Function block definitions can be compared in detail. This feature makes it easy to check for differences between the programs in function block definitions. · Comparison of Function Block Definitions, ST Programs, and Action Programs/Transition Programs/Subcharts in SFC Programs Previous version (version 7.0) ST programs and SFC programs could not be compared. New version (version 7.2) ST programs and SFC programs can be compared. ST programs in an SFC program can also be compared in detail. PLC-PT Integrated Simulation The following improvements have been made to the simultaneous interactive debugging function (integrated simulation), which debugs operation between the CX-Programmer's ladder program and NS-series PT touch panel test screens in the CX-Designer. · Starting Integrated Simulator from the CX-Programmer Previous version (version 7.

0) The integrated simulator could be started from the CX-Designer only; it could not be started from the CX-Programmer. New version (version 7.2) The integrated simulator can be started from the CX-Programmer (specifying a saved CX-Designer screen file). With this feature, it is possible to easily confirm the interaction between a ladder program being edited in the CX-Programmer and NS-series PT touch panel test screens. · Simulating the Occurrence of PLC Errors Previous version (version 7.0) During simulation, it was not possible to generate PLC system errors by manipulating the corresponding Auxiliary Area flags. (The system error flags were write-protected.) It was necessary to create ladder programming that generated errors using the FAL and FALS instructions, and check operation in the simulation. New version (version 7.2) PLC system errors can be generated during CX-Programmer ladder program simulation by selecting Simulation - PLC Error Simulator and writing the corresponding system error flags in the Auxiliary Area.

With this feature, it is not necessary to create ladder programming to generate errors. Also, it is easy to check the operation of the ladder program and NS-series touch panel when PLC errors occur. Improvements to Symbol Tables · Improved Interaction of the CX-Designer with Symbol Table Data Previous version (version 7.0) Symbol tables could be copied and pasted from the CX-Programmer to the CX-Designer, but not the opposite direction. Consequently, when NS-series touch panel test screens were being edited in the CX-Designer and I/O comments were edited in the CXDesigner symbol table, it was necessary to write the data in Excel and transfer it to the CXProgrammer's symbol table.

New version (version 7.2) Symbol tables can be copied in pasted in both directions between the CX-Designer and CX-Programmer. This feature makes it easy to reflect changes to the CX-Designer's symbol table, such as edited I/O comments, in the CXProgrammer's symbol table. CX-Programmer_Page (xii) OMRON PART 1: CX-Programmer · Support for the STRING Data Type in Ladder Programs and ST Programs Previous version (version 7.0) The STRING data type could be used only in ST-language function blocks.

New version (version 7.2) The STRING data type can be used in both ladder and ST languages, in both task programs and function blocks. The STRING data type supports ASCII characters between 1 and 255. Improved Automatic Online Connection · Added Automatic Detection of the Computer's Serial Port Previous version (version 7.0) When automatic online connection was performed from the computer's serial port, it was not necessary for the user to set the PLC model because it was recognized automatically, but the serial port had to be set in advance. New version (version 7.2) It is not necessary for the user to select the computer's serial port in advance. When automatic online connection is performed, the software automatically searches for computer serial ports that can be used. If the software finds a serial port that can be used for the online connection, the software automatically connects online from the detected port, and the serial port setting is also changed automatically. Improved Conversion of C500/C120/C**P Programs Previous version (version 7.

0) Programs stored in C500, C120, or C**P-series PLCs could be uploaded and converted for use in CS/CJ/CP-series PLCs or CVM1/CV-series PLCs, but the DM and HR Area data could not be converted to PLC memory. A backup program and I/O memory (DM and HR Area data) file (extension .c5b) could be used to restore the program to a C500/C120/C**P-series PLC, but it could not be converted to a CX-Programmer project. A program uploaded from a C500, C120, or C**P-series PLC could not be saved to a file in mnemonic-text format. New version (version 7.2) DM and HR Area data can also be converted to PLC memory. After conversion, it is now possible to select the CP1L as the PLC model. A backup program and I/O memory (DM and HR Area data) file (extension .c5b) can be converted to a CX-Programmer project for a CS/CJ/CP-series PLC or CVM1/CV-series PLC. A program uploaded from a C500, C120, or C**P-series PLC can be saved to a file in mnemonic-text format.

The saved file can be pasted as text in the CX-Programmer's Statement List (mnemonic window), and displayed or printed in ladder format. This feature allows the program to be checked in the CXProgrammer before converting it to a CS/CJ/CP-series PLC or CVM1/CV-series PLC program. Other Improvements Previous version (version 7.0) The CPU Unit's production information could be displayed from the I/O table only. When a CS1D Duplex System CPU Unit was being used, the CPU Unit's Active/Standby status could not be displayed in the project directory tree.

New version (version 7.2) The CPU Unit's production information can be displayed from the Main Menu's PLC Information Dialog Box. When a CS1D Duplex System CPU Unit (CS1D-H) is being used, the CPU Unit's Active/Standby status is displayed in the project directory tree. CX-Programmer_Page (xiii) OMRON PART 1: CX-Programmer Version 7.0 Upgrade Information Functionality Improved from Version 6.

1 to Version 7.0 Compatible PLC Models The following PLC models have been added as compatible PLCs as part of the version 6.1 to version 7.0 upgrade. CS/CJ Series CPU Units with unit version Ver. 4.0 and higher Ver. 4.0 and higher CS/CJ Series CPU Units are supported. CP Series CPU Units The CP Series CPU Units (CP1H-Y) are supported.