FA Integrated Tool Package CX-One

# CX-Programmer Ver.9

CSM_CX-Programmer_DS_E_8_1

## Improve Productivity for SYSMAC PLCs from Ladder Program Development and Unit Setup to Debugging and Maintenance


- Application software to create and debug programs for SYSMAC CS/CJ/CP/NSJ-series, C-series, and CVM1/C-series CPU Units.

**Note:** The CX-Programmer is included in the CX-One FA Integrated Tool Package.

## Features

- Easily Achieve Position Control with Wading Through User Manuals.
- Complete Support for Synchronous Operation between Units.
- Easier Connection to PLCs.
- Batch Backup/Restore with a Computer.
- Comprehensive Programming Environment.
- High Program Readability.
- Time Required for Onsite Startup and Debugging Has Been Significantly Reduced.

# Ordering Information

## Support Software

| Product name | Specifications | | | Model | Standards |
|---|---|---|---|---|---|
| | | Number of licenses | Media | | |
| **FA Integrated Tool Package CX-One Ver.4.□** | The CX-One is a package that integrates the Support Software for OMRON PLCs and components.<br><br>CX-One runs on the following OS.<br>Windows XP (Service Pack 3 or higher), Vista or 7<br>**Note:** Expect for Windows XP 64-bit version.<br><br>CX-One Ver.4.□ includes CX-Programmer Ver.9.□.<br>For details, refer to the CX-One catalog (Cat. No. R134). | 1 license ✻1 | DVD ✻2 | **CXONE-AL01D-V4** | – |
| **FA Integrated Tool Package CX-One Lite Ver.4.□** | CX-One Lite is a subset of the complete CX-One package that provides only the Support Software required for micro PLC applications.<br><br>CX-One Lite runs on the following OS.<br>Windows XP (Service Pack 3 or higher), Vista or 7<br>**Note:** Expect for Windows XP 64-bit version.<br><br>CX-One Lite Ver.4.□ includes Micro PLC Edition CX-Programmer Ver.9.□. | 1 license | CD | **CXONE-LT01C-V4** | |

**Note:** The CX-One and CX-One Lite cannot be simultaneously installed on the same computer.
✻**1.** Multi licenses are available for the CX-One (3, 10, 30, or 50 licenses).
✻**2.** The CX-One is also available on CD (CXONE-AL□□C-V4).

# Product Configuration

Setup disk : (CD) CD 4 pieces in the case
(DVD) DVD 1 piece in the case ✻
Guidance : A4 size, English/Japanese
Product Registration Guide, Japanese
User license agreement/User registration card, English/Japanese
✻ CX-One Lite has the CD version only.

# Main Functions

| Category | | Function |
|---|---|---|
| Programming | Ladder | Create Ladder program on Ladder View |
| | | Create Function Block Call on Ladder View |
| | | Create Rung Comment on Ladder View |
| | | Create Symbol Comments on Ladder View |
| | | Create Attached Comment on Ladder View |
| | | Create Ladder program on Mnemonic View |
| | | Create Ladder program by smart Input Mode |
| | Structured Text (ST) | Create Program in Structured Text language |
| | SFC | Create Program in SFC |
| | | Create SFC Action program in Ladder or Structured Text language |
| | | Create SFC Transition program in Ladder or Structured Text language |
| | Function Block (FB) | Create Function Block Body in Ladder or Structured Text language |
| | | Nesting Function Blocks (Up to 8 nesting levels) |
| | | Nesting Tree View (FB Instance Viewer) |
| | | Convert Ladder program to Function Block |
| | Common | Cross Reference Report |
| | | Cross Reference Pop-up |
| | | Program check |
| | | Symbol programming |
| | | Symbol check |
| | | Delete Unused Symbols |
| | | Address automatic allocation |
| | | Definition/Edit Data Structures |
| | | CX-Programmer configuration function (Option) |
| | | Keyboard Mapping function |
| | | Printing function |
| | | Find/Replace |
| | | Jump (Set Rung No./Program address/Set Rung with Commented Rung) |
| | | Expansion advanced instructions (C series) |
| | | UM area allocation (Set expansion fixed DM) (C200HS/E/G/X, CPM1/CPM1A, CPM2□) |
| | | Rung wrap function of Ladder (Online) |
| | | Edit IO comments function |
| | | Section/Rung manage |
| | | ROM Writer function |
| | | Start The CX-Integrator (CS/CJ series) |
| Reuse of program | | Import old support software data (LSS ✻1, SSS ✻2, CVSS ✻3, CPT ✻4, SYSWIN data) |
| | | Import/Export reusable Symbol and Ladder Rung data file |
| | | C500/C120/C**P backup |
| | | PLC Backup Tool Operation (Backup/Compare/Restore) |
| | | Memory Cassette Transfer function/Data Memory to Flash Memory Backup function (CP series) |
| | | PLC Model conversion |
| Connection with PLC | Connection with PLC directly | Automatic online connection |
| | | Communications via CJ2 CPU Unit USB port |
| | | Communications via peripheral port |
| | | Built-in CPU Unit serial communications |
| | | Serial Communications Unit |
| | Connection with PLC on Network | Automatic connection via EtherNet/IP Unit |
| | | FINS/UDP connection to EtherNet Unit or EtherNet/IP Unit via EtherNet port |
| | | FINS/TCP connection to EtherNet Unit or EtherNet/IP Unit via EtherNet port |
| | | CIP connection to EtherNet/IP Unit |
| | | FINS connection via Controller Link Board |
| | | FINS connection via SYSMAC LINK Board |
| | | FINS connection via SYSNET Board |
| | | FINS connection via modem |
| | Simulator | Communication to Simulator |
| File memory operation | | Format Memory card |
| | | Format EM file memory |
| | | Transfer Program file, Data file, and Parameter file between CPU unit and File memory |
| | | Transfer Symbol Files and Comment Files between CX-Programmer and File Memory |
| | | Delete file |
| | | Transfer (Copy) files between storages |

✻1. Ladder Support Software
✻2. SYSMAC Support Software
✻3. CV Support Software
✻4. SYSMAC-CPT

| Category | Function |
|---|---|
| **IO Table** | Create, Edit, Check IO Table |
| | Verify/Compare IO Tables |
| | Delete IO Table |
| | Installing a CPS File (CS/CJ series) |
| | Display/Write unit production information, unit text (CS/CJ series) |
| | Display unit profile information (CS/CJ series) |
| | Set/Transfer/Compare Parameters for Special I/O Units and CPU Bus Units |
| | Save Parameters for SIOU Units and CPU Bus Units (CS/CJ series) |
| | Start Special Tool for SIOU Units and CPU Bus Units (CSCJ series) |
| | Display each rack's power consumption (CS/CJ series) |
| | Display rack width (CJ series) |
| | Printing function |
| | Display the Dip-switches status of the CPU Unit |
| **Transfer program** | Transfer program (Program, Rung Comment, Attached Comment, IO Table, PLC Settings, Symbol Table, IO Memory, SIOU Unit Parameters) |
| | Transferring in Task units |
| | Verify program (Program, Function Block Body, SFC action, SFC transition, IO Table, IO Memory, PLC setting) |
| **Monitoring program** | Monitoring Ladder View |
| | Monitoring Mnemonic View |
| | Monitoring Structured Text program |
| | Monitoring SFC program |
| | Monitoring SFC action, SFC transition, SFC subchart |
| | Displaying Flash-ROM back up status |
| | Monitoring Function Block Ladder View |
| | Monitoring Function Block ST View |
| **Debug program** | Set/Reset |
| | Change current value |
| | Force Set/Reset |
| | Change Timer/Counter setting values |
| | Differential monitor/Pause monitor |
| | Online edit |
| | Online editing of Function Block |
| | Display errors and error logs occurring |
| | Data trace, Time chart monitor |
| | Save result of data trace or time chart monitor |
| | Display cycle time/ task execution time |
| | Measure MARK instruction execution time (CV/CVM1 series) |
| | Read Protection Using Passwords (CS/CJ/CP series) |
| | Read Protection for Specific Tasks (CS/CJ/CP series) |
| | System or partial protection (CV/CVM1 series) |
| | Write Protection (CPM1/CPM1A, CPM2□) |
| | Password Protection of Function Bloks |
| | Read/Set clock |
| **Simulation** | Debugging by using a Simulator |
| | PLC-PT Integrated Simulation |
| | PLC Error Simulator |
| **Edit/Monitor IO memory (Data memory)** | Edit IO memory data |
| | Monitor IO memory data (PLC Memory window, Address monitor, Watch window, Ladder window, Mnemonic window) |
| | Verify/Transfer IO memory data |
| | Find contacts of Force set/reset |
| **PLC settings** | Edit PLC settings |
| | Transfer PLC settings |
| | Verify PLC settings |
| | Printing |

| Category | | Function |
|---|---|---|
| Appendix | File extension | CX-Programmer project file (.CXP); A file containing the all user programs and parameter data created by CX-Programmer. (The .CXP file is a compressed version of the .CXT file.) |
| | | CXT file (.CXT); A text-based format supported by CX-Programmer. The .CXT file format is used for file conversions. |
| | | BAK file (.BAK); A backup copy of the project file. |
| | | Program file (.OBJ); It indicates full program area files. |
| | | Program index file (PROGRAMS.IDX); CX-Programmer section names, section comments, and program comments. |
| | | Symbols file (SYMBOLS.SYM); CX-Programmer Global symbol tables, Local symbol tables, settings for automatically allocated areas. |
| | | Comment file (COMMENTS.CMT); CX-Programmer rung comments and comments. |
| | | OPT file (.OPT); A file containing the preferences for the project. |
| | | CXO file (.CXO); A file containing the settings made on the Options dialog and the Watch window. |
| | | MAC file (.MAC); A file containing the keyboard mapping made on the Keyboard Mapping (Shortcut Keys) dialog. |
| | | CX-Server file (.CDM); A file containing all of the information about the PLCs, which CX-Server can connect to and the addresses of interest in each PLC which may be accessed. A new CX-Server project can be created from the CX-Net Network Configuration tool. |
| | View | Ladder Section Window; It displays the Ladder program graphically. PLC program instructions can be entered as a graphical representation in Ladder form. |
| | | Output Window;<br>• [Compile]; The Compile tab displays the output produced from program compilation. Selecting an error highlights the source of the problem in the Ladder Diagram. The Compile tab also displays other information, for example, warnings and connection messages.<br>• [Find Report]; The Find Report tab displays the output produced from a search of project files for a articular entry.<br>• [Transfer]; The Transfer tab view displays the results of file or program loading. |
| | | Watch Window; It displays the value of the addresses of PLC memory during program execution. |
| | | Mnemonics View; The Mnemonics view is a formatted editor for programming in mnemonic instructions. |
| | | ST Editor Window; Displays the ST language can be input directly. |
| | | SFC Editor Window; Displays an SFC chart or subchart. |
| | | Symbol Table Window; Displays an editable list of symbol definitions - the names, addresses and comments. |

## System Requirements

The system requirements are the same as those for the CX-One. (The CX-Programmer is included in the CX-One.)
For, details, refer to the FA Integrated Tool Package CX-One Datasheet.

# Applicable Units

CX-Programmer can be used with SYSMAC CS/CJ/CP/NSJ-series, C-series, and CVM1/C-series PLCs.

# Applicable Models

| Series | | Unit |
|---|---|---|
| CS/CJ/CP-series | CS-series | CS1H-CPU63/64/65/66/67 (-V1)<br>CS1G-CPU42/43/44/45 (-V1)<br>CS1H-CPU63H/64H/65H/66H/67H<br>CS1G-CPU42H/43H/44H/45H<br>CS1D-CPU65H/67H<br>CS1D-CPU42S/44S/65S/67S |
| | CJ-series | CJ1G-CPU44/45<br>CJ1H-CPU65H/66H/67H/64H-R/65H-R/66H-R/67H-R<br>CJ1G-CPU42H/43H/44H/45H<br>CJ1M-CPU11/12/13/21/22/23<br>CJ2H-CPU64-EIP/65-EIP/66-EIP/67-EIP/68-EIP<br>CJ2H-CPU64/65/66/67/68<br>CJ2M-CPU11/12/13/14/15/31/32/33/34/35 |
| | CP-series | CP1H-XA40DR-A/XA40DT-D/XA40DT1-D/X40DR-A/X40DT-D/X40DT1-D/Y20DT-D<br>CP1L-EL20DR-D/EL20DT-D/EL20DT1-D<br>CP1L-EM40DR/EM40DT-D/EM40DT1-D/EM30DR-D/EM30DT-D/EM30DT1-D<br>CP1L-M60DR-A/M60DR-D/M60DT-A/M60DT-D/M60DT1-D/M40DR-A/M40DR-D/M40DT-A/M40DT-D/M40DT1-D/ M30DR-A/M30DR-D/M30DT-A/M30DT-D/M30DT1-D<br>CP1L-L20DR-A/L20DR-D/L20DT-A/L20DT-D/L20DT1-D/L14DR-A/L14DR-D/L14DT-A/L14DT-D/L14DT1-D/L10DR-A/ L10DR-D/L10DT-A/L10DT-D/L10DT1-D<br>CP1E-E14SDR-A/E20SDR-A/E30SDR-A/E40SDR-A/E60SDR-A<br>CP1E-N30S1DR-A/N30S1DT-D/N30S1DT1-D/N40S1DR-A/N40S1DT-D/N40S1DT1-D/N60S1DR-A/N60S1DT-D/ N60S1DT1-D<br>CP1E-N30SDR-A/N30SDT-D/N30SDT1-D/N40SDR-A/N40SDT-D/N40SDT1-D/N60SDR-A/N60SDT-D/N60SDT1-D<br>CP1E-E40DR-A/E30DR-A/E20DR-A/E14DR-A/E10DR-A/E10DT-A/E10DT1-A/E10DR-D/E10DT-D/E10DT1-D<br>CP1E-N60DR-A/N60DT-A/N60DT1-A/N60DR-D/N60DT-D/N60DT1-D/N40DR-A/N40DR-D/N40DT-A/N40DT-D/ N40DT1-A/N40DT1-D/N30DR-A/N30DR-D/N30DT-A/N30DT-D/N30DT1-A/N30DT1-D/N20DR-A/N20DR-T/ N20DT-A/N20DT-D/N20DT1-A/N20DT1-D/N14DR-A/N14DT-A/N14DT1-A/N14DR-D/N14DT-D/N14DT1-D<br>CP1E-NA20DR-A/NA20DT-D/NA20DT1-D |
| NSJ-series | NSJ Controller | NSJ5-□-G5D<br>NSJ8-□-G5D<br>NSJ10-□-G5D<br>NSJ12-□-G5D<br>NSJ5-□-M3D<br>NSJ8-□-M3D |
| C-series | C1000H | C1000H-CPU01 |
| | C2000H | C2000H-CPU01 Simplex system |
| | C200H | C200H-CPU01/02/03/11/21/22/23/31 |
| | α-series | 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 | C200HS-CPU01/03/21/23/31/33 |
| | CPM1A-series | CPM1 (A)-10CDR/20CDR/30CDR/40CDR (-V1) |
| | CPM2A-series | CPM2A-20CD/30CD/40CD/60CD |
| | CPM2C-series | CPM2C-10CD/10C1D/20CD/20C1D |
| | CPM2□-S□ | CPM2C-S100C/110C<br>CPM2C-S110C-DRT |
| | CQM1 | CQM1-CPU11/21/41/42/43/44/45 |
| | CQM1H-series | CQM1H-CPU11/21/51/61 |
| CVM1/CV-series | CV1000 | CV1000-CPU01 (-V1) |
| | CV2000 | CV2000-CPU01 (-V1) |
| | CV500 | CV500-CPU01 (-V1) |
| | CVM1 | CVM1-CPU01/1 (-V1) |
| | CVM1-V2 | CVM1-CPU01-V2/CPU11-V2/CPU21-V2 |
| FQM1 | | FQM1-CM001/CM002 Coordinator module<br>FQM1-MMA21/MMA22/MMP21/MMP22 Motion control module |
| IDSC | | IDSC-C1DR-A/C1DT-A |
| SRM1 | | SRM1-C01/C02 (-V1/-V2) |

**Note:** Including models whose production were discontinued.

# Related Manuals

| Cat.No. | Model | Manual name | Contents |
|---|---|---|---|
| W446 | CXONE-AL□□C-V4/ AL□□D-V4 | CX-Programmer Ver. 9.□ Operation Manual | Provides information on how to use the CX-Programmer for all functionality except for function blocks. |
| W447 | CXONE-AL□□C-V4/ AL□□D-V4 | CX-Programmer Ver. 9.□ Operation Manual Function Blocks/Structured Texts | Describes the function block functions and structured text programming functions that can be used with the CX-Programmer version 9.□. For details on other CX-Programmer functions, refer to the CX-Programmer Ver. 9.□ Operation Manual (Cat. No.W446). |
| W469 | CXONE-AL□□C-V4/ AL□□D-V4 | CX-Programmer Operation Manual: SFC | Explains how to use the SFC programming functions. For explanations of other shared CX-Programmer functions, refer to the CX-Programmer Operation Manual (W446). |
| W463 | CXONE-AL□□C-V4/ AL□□D-V4 | CX-One Setup Manual | Installation and overview of CX-One FA Integrated Tool Package. |
| W445 | CXONE-AL□□C-V4/ AL□□D-V4 | CX-Integrator Operation Manual | Describes the operating procedures for the CX-Integrator. |

## Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

## Warranty and Limitations of Liability

### WARRANTY

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

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

### LIMITATIONS OF LIABILITY

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

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

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

## Application Considerations

### SUITABILITY FOR USE

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

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

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

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

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

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

### PROGRAMMABLE PRODUCTS

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

## Disclaimers

### CHANGE IN SPECIFICATIONS

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

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

### DIMENSIONS AND WEIGHTS

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

### PERFORMANCE DATA

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

### ERRORS AND OMISSIONS

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

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**In the interest of product improvement, specifications are subject to change without notice.**

**OMRON Corporation**
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