FA Communications Software
SYSMAC Gateway
WS02-SGWC1
CX-Compolet
WS02-CPLC1
OMRON’s Upgraded FA Communications Flexible, High-speed, and Direct Data Link Computers.

In response to this demand, OMRON has completely renovated its FA Communications Software under new names. Data links are now possible using Ethernet. Data links can even be accessed via a LAN port on a notebook computer. And FA Communications Software can be used to access PLC data by using only tag names to enable more flexible and higher-speed access of PLC data from personal computers, and that lowers costs by eliminating the need for a special board for data links.

OMRON’s Upgraded FA Communications Software

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<td>Yes (Tag access and data links enabled)</td>
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</tr>
<tr>
<td>Ethernet</td>
<td>Yes (Tag access and data links enabled)</td>
<td>No special board required</td>
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<tr>
<td>USB</td>
<td>Yes (USB)</td>
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<tr>
<td>PLCs</td>
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<td>Other functions</td>
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Software Lets You Create Applications with Access to SYSMAC PLCs from Personal Computers.

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The need for faster transmission of more and more information between personal computers and PLCs is coupled with the need for frequent changes to specifications, such as address allocations in PLCs, a demand for software standardization to eliminate dependence on specific applications and networks, and a demand for cost reductions.

Flexibility

- Tag Access
- Two Types of Access

High Speed

- Access to personal computers via data links.
- Communications using software processing.

Direct Data Link Access

- Access to PLCs on networks.
- Data links are possible even for a notebook computer.
- Software operations are used, improving personal computer and communications performance.
- EtherNet/IP provides greater capacity and higher speed, and because data link areas in personal computer memory are accessed EtherNet/IP nodes.

Two New Features

- Access to personal computers becomes nodes on EtherNet/IP data links just like PLCs.
- Easy PLC Data Reading and Writing with VB.NET and VC#.NET Control Objects.
- Reduced costs and greater communications capacity.

PLC data can be read and written across EtherNet/IP networks by simply reading and writing values in personal computer memory. No special Board required.

The addresses in PLC assigned to tag names can be changed without creating additional work. No changes are required at the application.

PLC data is accessed using tag names, so there is no need to change addresses in the PLC even if addresses are changed in the PLC. This enables application standardization.

Flexible, High-speed Software for Direct PLC Access

- The LAN port at the personal computer is used, so no special board is required.
- Software operations are used, improving personal computer and communications performance.
- EtherNet/IP provides greater capacity and higher speed, and because data link areas in personal computer memory are accessed EtherNet/IP nodes.

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SYSMAC Gateway provides an OMRON PLC communications driver and virtual memory. OMRON’s FA Communications Software uses the SYSMAC Gateway communications middleware as a common platform.

### Software Configuration

**Application Software**

- **CX-Compolet**

**Message Communications**

- Data Links

**SYSMAC Gateway**

--mounted on EtherNet/IP
- USB
- Ethernet
- Controller Link

**SYSMAC PLC**

- RS-232C
- USB
- Ethernet
- Controller Link

### Application Example

**Using Events to Provide Notification of Changes in Data**

- The application is notified using events only when preset conditions are met.
- Eliminating programming for checking cyclic data changes reduces the load on the personal computer processor.
- Notification of data changes is provided immediately, eliminating wasted communications time.

### System Configuration Examples

SYSMAC Gateway can access the PLCs in all of the following configurations.

- **OMRON PLC Driver with Virtual PLC Memory Functionality**

- **Software Configuration**

- **System Configuration Examples**

### Main SYSMAC Gateway Functions

- **Supported protocols**
  - SYSWAY, SYSWAY-CV, Peripheral Bus (Toolbus), FINS, and CIP

- **Supported PLCs**
  - CJ2, CJ1, CS1, CP1, C, and CVM1/CV

- **Supported networks**
  - RS-232C, SYSWAY, SYSWAY-CV, Peripheral Bus (Toolbus), USB, EtherNet/IP®, EtherCAT®, Controller Link (FINS), and SYSMAC LINK (FINS)

  

### Environment for SYSMAC Gateway

**Languages**

- English or Japanese

**Supported OS**

- Windows 2000, XP, or Vista and 2003 Server

**CIP Service Specifications**

- **Tag data links**
  - Maximum number of connections: 1024
  - Allowable communications bandwidth: 8,930 kbps

- **Message send function (client)**
  - Maximum number of connections: 1 (UCMM)

- **Message receive function (server)**
  - Maximum number of connections: 2 (Class 3)

- **Explicit messages**
  - Maximum number of connections: 2

**Note:** The number of connections can be set depending on the number of connections.
Easily Create Programming to Read and Write PLC Data using VB or VC#.

CX-Compolet

.NET Control Objects

- ActiveX Control Objects are also included.

CX-Compolet is a package of software components that make it easy to program reading and writing OMRON PLC data.

- Read and write I/O memory in the PLC, change the operating mode, read error logs, and perform other operations.
- Can be used from Visual Basic.NET and Visual C# .NET.
- For the CJ2 with EtherNet/IP functionality, I/O memory in the PLC can be accessed by using tag names rather than addresses.
- Array variable access is possible.
- Can be used from Visual Basic.NET and Visual C# .NET.
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Software Configuration

CX-Compolet can access the PLCs in all of the following configurations.

- USB
- VB.NET/VC#.NET
- Commercially available USB cable

Example.

Example: Reading C Memory

Press the button to read the value (D0 in the example).

DIAGRAM:

SYSMAC PLC

USB

FINS service execution

OMRON SYSMAC CJ2 Icon will be displayed in the controls.

Creating I/O tables

 starving error messages when an error occurs.

For a block of data of the same data type, it is too much work to have to specify the addresses one by one rather than being able to view them as one group and access that data as an element.

Main CX-Compolet Functions

- Communications with SYSMAC PLCs
- Reading and writing I/O memory
- Operating status
- Error information
- Other SYSMAC PLC information

Environment for CX-Compolet

- Development environment: .NET Framework 1.1, 2.0, 3.0, or 3.5
- Supported execution environment: .NET Framework 1.1, 2.0, 3.0, or 3.5
- Development languages: Visual Basic.NET and Visual C# .NET
- Visual Basic version 5 or 6 (Only the functions compatible with Compolet V2 can be used.)

Application Example

Easily Program Device Alarm Monitoring.

- Using the control components provided by CX-Compolet frees the application designers from having to program the communications portions of the application.
- Data for device alarms and other data are sent to the applications using non-solicited EtherNet/IP communications events.
- Standardization is made easy by specifying data using tag names (such as “Alarm A” and “Alarm B”) in the applications.

Environment for CX-Compolet

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- Supported execution environment: .NET Framework 1.1, 2.0, 3.0, or 3.5
- Development languages: Visual Basic.NET and Visual C# .NET
- Visual Basic version 5 or 6 (Only the functions compatible with Compolet V2 can be used.)

Note: The above configurations are only examples. Communications are also possible with PLCs other than those shown here. For details, refer to page 8.

Example.

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## SYSMAC Gateway (Communications Middleware)

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<td>Communications middleware for personal computers running Windows. Supports CIP communications and tag data links (EtherNet/IP) in addition to FinsGateway functions. Supported communications: RS-232C, USB, Controller Link, SYSMAC LINK, Ethernet, EtherNet/IP</td>
<td>WS02-SGW1</td>
<td>NEW</td>
</tr>
<tr>
<td></td>
<td>10 additional licenses (This product provides only additional licenses.)</td>
<td>WS02-SGW1-L10</td>
<td>NEW</td>
</tr>
</tbody>
</table>

## CX-Compolet

Supported OS: Microsoft Windows Vista, XP, 2000, and 2003 Server

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</tr>
</thead>
<tbody>
<tr>
<td>CX-Compolet</td>
<td>Software components that can make it easy to create programs for communications between a computer and controllers. This packaged product bundles SYSMAC Gateway. Development environment: Visual Studio.NET2003/NET2005/NET2008 Development languages: Visual Basic .NET, Visual C#.NET, Visual Basic Ver. 5/6</td>
<td>WS02-CPL1</td>
<td>NEW</td>
</tr>
<tr>
<td></td>
<td>3 additional licenses (This product provides only additional licenses. The software must be purchased in advance.)</td>
<td>WS02-CPL1-L3</td>
<td>NEW</td>
</tr>
<tr>
<td></td>
<td>5 additional licenses (This product provides only additional licenses. The software must be purchased in advance.)</td>
<td>WS02-CPL1-L5</td>
<td>NEW</td>
</tr>
<tr>
<td></td>
<td>10 additional licenses (This product provides only additional licenses. The software must be purchased in advance.)</td>
<td>WS02-CPL1-L10</td>
<td>NEW</td>
</tr>
<tr>
<td></td>
<td>Software components only. This package doesn’t include SYSMAC Gateway as communications drivers.</td>
<td>WS02-CPL2</td>
<td>NEW</td>
</tr>
</tbody>
</table>

## Correspondence between Main PLC Models and Connected Networks

<table>
<thead>
<tr>
<th>PLC</th>
<th>Personal computer</th>
<th>RS-232C</th>
<th>USB</th>
<th>Ethernet (LAN)</th>
<th>Controller Link</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SYSWAY (Host Link C Mode)</td>
<td></td>
<td>FINs</td>
<td>Ethernet (FINs)</td>
<td>FINS</td>
</tr>
<tr>
<td>C200H/C200HE, C301H</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes (Peripheral Bus – CS/CJ)</td>
<td>Yes*2</td>
</tr>
<tr>
<td>CP1</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes (Peripheral Bus – CS/CJ)</td>
<td>Yes*</td>
</tr>
<tr>
<td>C Series</td>
<td></td>
<td></td>
<td></td>
<td>Yes (Peripheral Bus – CS/CJ)</td>
<td>Yes*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes (Peripheral Bus – CS/CJ)</td>
<td>Yes*</td>
</tr>
<tr>
<td>CPM1/CPM2</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No (Peripheral Bus – CS/CJ)</td>
<td>No</td>
</tr>
<tr>
<td>CV1/CV</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes (Peripheral Bus – CV)</td>
<td>No</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
<td>No (Peripheral Bus – CV)</td>
<td>No</td>
</tr>
<tr>
<td>CompoWay/F Slaves, such as Temperature Controllers</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
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Notes:
- A separate Communications Unit is required. *Specification using tag names is not possible.

## Correspondence between FA Communications Software and Connected Networks

<table>
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<th>Personal Computer Boards</th>
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<tr>
<td></td>
<td>SYSMAC Board</td>
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<td>CS1 Bus Interface Board</td>
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Supported OS: Microsoft Windows Vista, XP, 2000, and 2003 Server

- One license is required per computer.
- Only functions provided by Compolet V2 as ActiveX controls are supported for Visual Basic version 5 or 6.

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**Ordering Information**

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**CAUTION:**

- **Note:** Do not use this document to operate the Unit.

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