

NEW

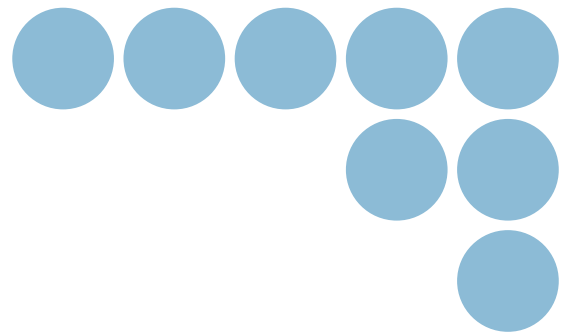
FA Communications Software

SYSMAC Gateway

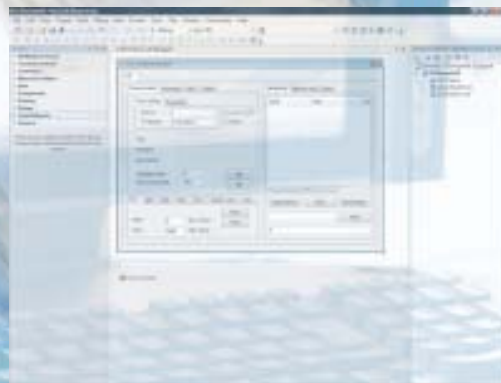
WS02-SGWC1

CX-Compolet

WS02-CPLC1



SYSMAC Gateway

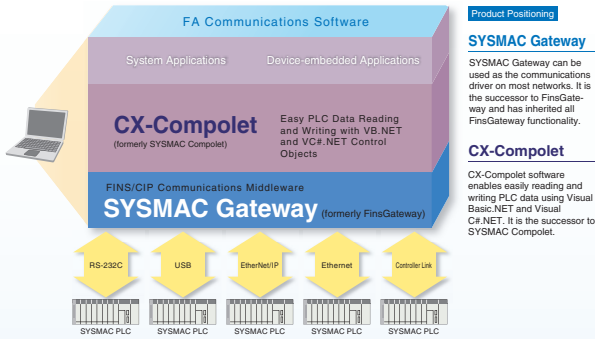


CX-Compolet

OMRON's Upgraded FA Communications Flexible, High-speed, and Direct Data Link Computers.

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.

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.

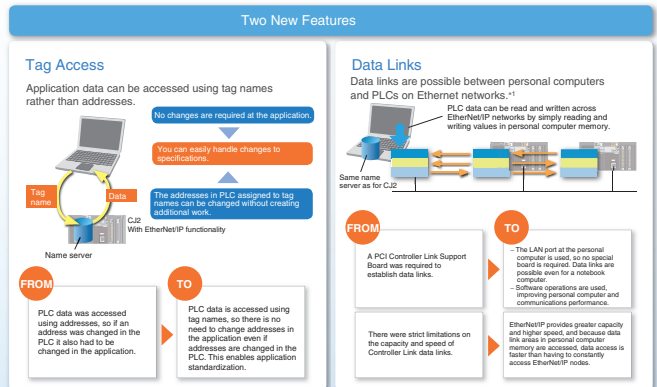
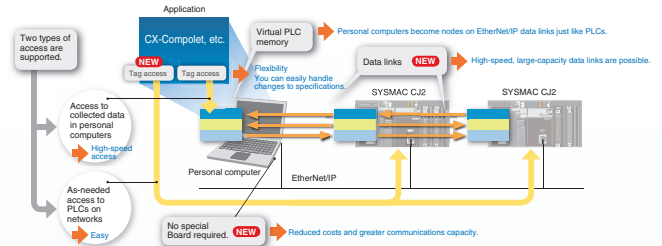
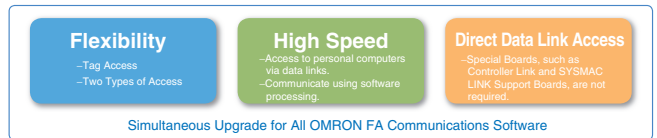


Product Positioning
SYSMAC Gateway
 SYSMAC Gateway can be used as the communications driver on most networks. It is the successor to FinsGateway and has inherited all FinsGateway functionality.
CX-Compolet
 CX-Compolet software enables easily reading and writing PLC data using Visual Basic.NET and Visual C#.NET. It is the successor to SYSMAC Compolet.

Upgraded Functions for FA Communications Software

Item	SYSMAC Gateway	CX-Compolet
Operating system	Windows Vista	
Network	EtherNet/IP	Yes (Tag access and data links enabled)
	USB	Yes (CJ2, CP1)
PLCs	CJ2 (with EtherNet/IP functionality)	
Other functions	Checking operation on EtherNet/IP	Visual Studio.NET 2008 • Array variables are supported.

Software Lets You Create Applications with Access to SYSMAC PLCs from Personal Computers.



** EtherNet/IP is required for data links on Ethernet networks.

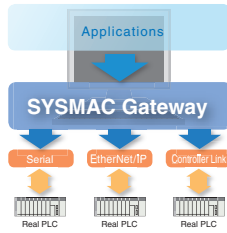
An OMRON PLC Driver with Virtual PLC Memory Functionality

SYSMAC Gateway

Communications Driver and Virtual PLC Memory

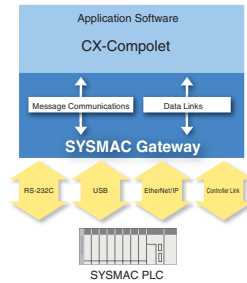
SYSMAC Gateway provides an OMRON PLC communications driver and virtual memory. OMRON's FA Communications Software uses the SYSMAC Gateway communications middleware as a common platform.

- In addition to FINS communications, operation of SYSMAC Gateway has been verified on EtherNet/IP.
- SYSMAC Gateway absorbs the differences in the physical layers of RS-232C, USB, Ethernet, EtherNet/IP, and Controller Link.
- Virtual PLC event memory is provided to enable a personal computer to participate as a data link node.
- Changes to memory can be detected in applications at the personal computer.



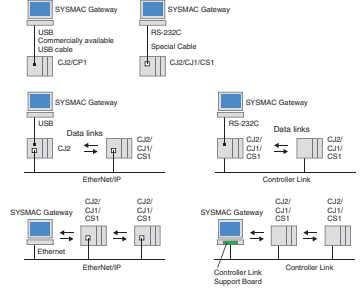
Note: USB and Ethernet can also be used for communications.

Software Configuration



System Configuration Examples

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

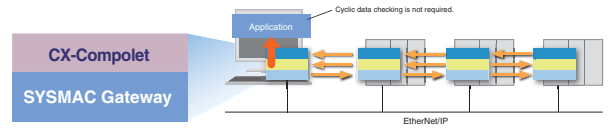


Note: The above configurations are only examples. Communications are also possible with PLCs other than those shown here. For details, refer to page 8.

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.



Situation Developing or Modifying PLC Applications Is Too Much Work

Problem	Solution with SYSMAC Gateway
Customers who have created their own communications programs	Time spent on programming communications can be reduced by absorbing the differences between networks.
Customers who are already using FinsGateway	Using EtherNet/IP enables high-speed, large-capacity data links with no need for a special communications board.
Customers who want to standardize personal computer applications	For the C.I2 with EtherNet/IP functionality, tag access and tag data links (*) provide freedom from PLC memory maps.

Main SYSMAC Gateway Functions

Item	Description
Supported protocols	SYSMAC, SYSMAC-CV, Peripheral Bus (Toolbus), FINS, and CIP
Supported PLCs	C.I2, C.J1, C.S1, C.P1, C, and CVM1/ICV
Supported networks	RS-232C (SYSMAC, SYSMAC-CV, Peripheral Bus (Toolbus)) USB, EtherNet/IP ^{*)} , Ethernet (FINS), Controller Link (FINS), and SYSMAC LINK (FINS)
Virtual event memory	CIO, Auxiliary (A), Holding (H), Work (W), DM, and EM1 to EM1F
Tag access	For the C.I2 (with EtherNet/IP functionality), access by tag name is enabled.

Environment for SYSMAC Gateway

Item	Description
Languages	English or Japanese
Supported OS	Windows 2000, XP, or Vista and 2003 Server

CIP Service Specifications

Tag data links	Specifications
Number of connections	256
Allowable communications bandwidth	5,000 gpps
Refresh period (RP)	1 to 10,000 ms (unit: 1 ms) ^{*)}
Link data capacity	184, 832 words max.
Data size per connection	722 words (1,444 bytes) max.
Message send function (client)	CIP connectionless (UCMM) and CIP connection (Class 3) communications
Message receive function (server)	CIP connectionless (UCMM) and CIP connection (Class 3) communications
Data size	502 bytes
CIP routing	Not supported.

^{*)} The RPIs that can be set depend on the number of connections.

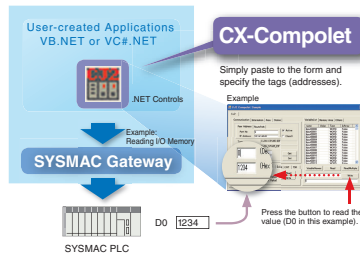
Easily Create Programming to Read and Write PLC Data using VB or VC#.

CX-Compolet

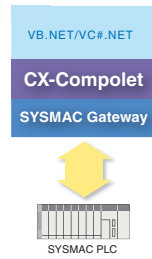
.NET Control Objects *ActiveX Control Objects are also included.

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.
- Supports Microsoft Visual Studio.NET 2008. **NEW**
- Can be used from Visual Basic.NET and Visual C#.NET.
- For the C.J2 with EtherNet/IP functionality, I/O memory in the PLC can be accessed by using tag names rather than addresses. **NEW**
- Array variable access is possible. **NEW**

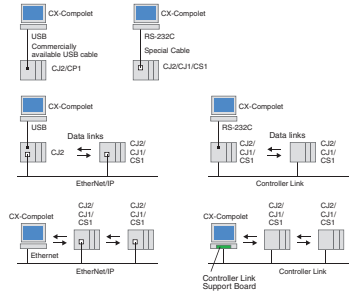


Software Configuration



System Configuration Examples

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

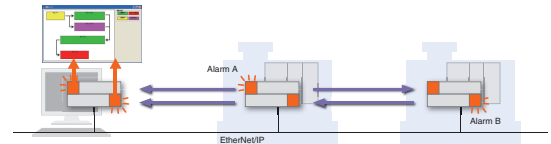


Note: The above configurations are only examples. Communications are also possible with PLCs other than those shown here. For details, refer to page 8.

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.

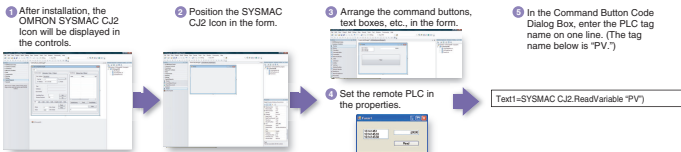


Situation Creating and Modifying VB/VC# Communications Programming Is Too Much Work

Problem	Solution with CX-Compolet
Having to program communications frame assembly, reception response interpretation, and monitoring is too much work.	Processing such as communications frame assembly is prepared in advance!
Having to change communications processing, e.g., for Ethernet and serial communications, is too much work.	Data is accessed by using tag names rather than by using addresses, so programming does not have to be changed even if PLC addresses are changed.
Handling PLC address changes is particularly time consuming.	Note: When combined with the C.J2 with EtherNet/IP functionality.
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.	Array variables are supported, so data can be easily specified by simply changing the element subscript with the same tag name.

Procedure

Simply Paste to a Form and Enter a Line of Code.



Main CX-Compolet Functions

Interface	Function	Description
Properties	Communications with SYSMAC PLCs	Specifies the PLC to communicate with, and reads network information.
	Reading and writing I/O memory	Reads and writes data in memory areas, such as the DM Area or CIO Area. For example, DM word 100 can be specified by using 'D100' or by using a tag name.
	Operating status	Reads and changes the operating mode.
	Area information	Reads information such as the program area size and number of DM Area words.
	Error information	Reads the value and error message when an error occurs.
	Other SYSMAC PLC information	Reads the model and reads and changes the clock.
Methods	Reading and writing I/O memory	Reads and writes memory, such as consecutive words in the DM Area or CIO Area. For example, it is possible to specify the data type (integer, single, etc.) or change the data type (BCD, BIN, SBIN).
	Creating I/O tables	Creates the I/O tables for the present configuration.
	Force-setting, force-resetting and clearing bits	Force-sets, force-resets, and clears bits.
	Communications with SYSMAC PLCs	Specifies the PLC to communicate with.
Events	FINS service execution	Sends FINS commands and gets the responses that are received.
	Scheduled events	Events occur at regular intervals.

Environment for CX-Compolet

Item	Description
Languages	English or Japanese
Supported OS	Windows 2000, XP, or Vista and 2003 Server
Supported execution environment	.NET Framework (1.1, 2.0, 3.0, or 3.5)
Development environment	Microsoft Visual Studio .NET (See note.), .NET 2003, .NET 2005, or .NET2008 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: Only the components compatible with SYSMAC Compolet version 2003 are supported. A development environment of .NET 2003 or higher is required for CIP communications.

Ordering Information

■ SYSMAC Gateway (Communications Middleware)

Product name	Specification	Model	Standards
SYSMAC Gateway*1	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	WS02-SGWC1 <i>NEW</i>	—
	10 additional licenses (This product provides only additional licenses.)	WS02-SGWC1-L10 <i>NEW</i>	
SYSMAC Gateway SDK	Software development kit for creating communications programs using SYSMAC Gateway. Development languages: C, C++, Visual Basic.NET, Visual C#.NET	WS02-SGWC1S <i>NEW</i>	

Supported OS: Microsoft Windows Vista, XP, 2000, and 2003 Server
*1 One license is required per computer.

■ CX-Compolet

Product name	Specification	Model	Standards
CX-Compolet*1	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*2 Supported communications: Equal to SYSMAC Gateway.	WS02-CPLC1 <i>NEW</i>	—
	3 additional licenses (This product provides only additional licenses. The software must be purchased in advance.)	WS02-CPLC1-L3 <i>NEW</i>	
	5 additional licenses (This product provides only additional licenses. The software must be purchased in advance.)	WS02-CPLC1-L5 <i>NEW</i>	
	10 additional licenses (This product provides only additional licenses. The software must be purchased in advance.)	WS02-CPLC1-L10 <i>NEW</i>	
	Software components only. This package doesn't include SYSMAC Gateway as communications drivers.	WS02-CPLC2 <i>NEW</i>	

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

*1 One license is required per computer.

*2 Only functions provided by Compolet V2 as ActiveX controls are supported for Visual Basic version 5 or 6.

Correspondence between Main PLC Models and Connected Networks

PLC	Personal computer	RS-232C				USB	Ethernet (LAN)		Controller Link
		SYSWAY (Host Link C Mode)	SYSWAY-CV (Host Link FINS)	CompoWay/F (master at personal computer)	Peripheral Bus	FINS	Ethernet (FINS)	EtherNet/IP	FINS
CJ2 with EtherNet/IP functionality	Yes	Yes	No	Yes (Peripheral Bus – CS/CJ)	Yes*2	Yes	Yes (Specification using tag names is possible.)	Yes*1	
CJ1	Yes	Yes	No	Yes (Peripheral Bus – CS/CJ)	No	Yes (Communications Units are not required for CJ1M PLCs with EtherNet functionality.)	Yes*1, *2	Yes*1	
CS1	Yes	Yes	No	Yes (Peripheral Bus – CS/CJ)	No	Yes*1	Yes*1, *2	Yes*1	
CP1	Yes	Yes	No	Yes (Peripheral Bus – CS/CJ)	Yes	Yes*1 (CP1H only)	No	Yes*1 (CP1H only)	
C Series	C200HX/HG/HE, CQM1H	Yes	No	No	Yes (Peripheral Bus – C)	No	No	Yes*1	
	CPM1/CPM2	Yes	No	No	Yes (Peripheral Bus – C)	No	No	No	
CVM1/CV	Yes	Yes	No	Yes (Peripheral Bus – CV)	No	Yes*1	No	Yes*1	
CompoWay/F Slaves, such as Temperature Controllers	No	No	Yes	No	No	No	No	No	

*1 A separate Communications Unit is required. *2 Specification using tag names is not possible.

Correspondence between FA Communications Software and Connected Networks

FA Communications Software	Communications	Communications method	Personal Computer Boards		
			SYSMAC Board	CS1 Board	CS1 Bus Interface Board
· SYSMAC Gateway	Message communications	FINS communications	Yes	Yes	Yes
· CX-Compolet	Data link communications	FINS communications	Yes	Yes	Yes

This catalog mainly provides information that is necessary for selecting suitable models, and does not contain precautions for correct use. Always read the precautions and other required information provided in product operation manuals before using the product.

- The application examples provided in this catalog are for reference only. Check functions and safety of the equipment before use.
- Never use the products for any application requiring special safety requirements, such as nuclear energy control systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, or other 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.

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

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