

**New!**

**OMRON**

# ID Sensor Units

## For V600-series RFID System

CJ1W-V600C11/V600C12

CS1W-V600C11/V600C12

Dramatic Improvements in Usability Contribute to Higher Productivity and Quality

V600-series Inductive Coupling RFID Systems offer maximum compatibility with OMRON CJ1/CS1-series PLCs.

**CJ1**

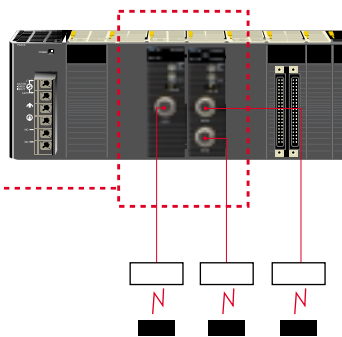
For the CJ1 Series



Single-head Unit



Double-head Unit



**CS1**

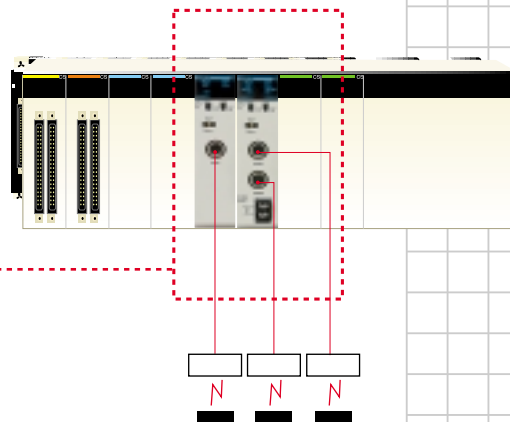
For the CS1 Series



Single-head Unit



Double-head Unit



**Innovation  
in the Solution Age**

OMRON INDUSTRIAL AUTOMATION

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.

# The RFID\* system transforms production line control and s

(\*RFID: Radio Frequency Identification)

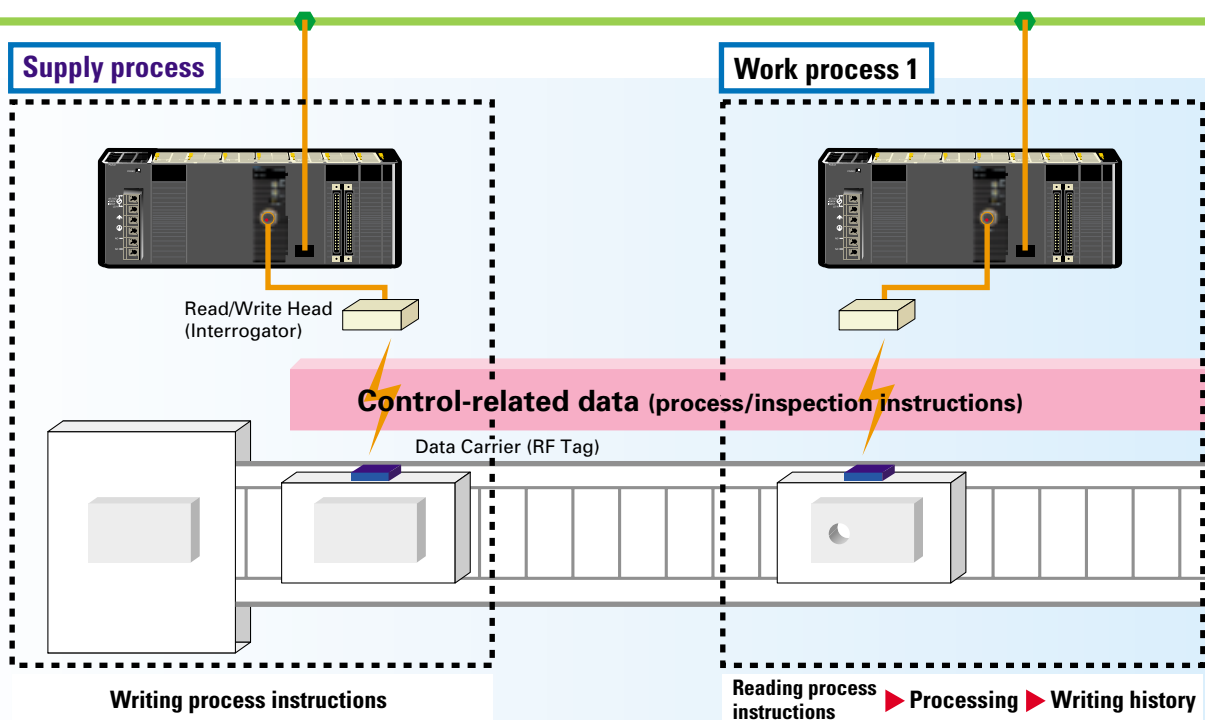
- By using Data Carriers to carry information on the products being produced, the flow of line control data and management data is more efficiently organized -- **thereby integrating products and information.**
- Receiving control-related data from the products enables an autonomous control system that no longer relies on a host computer. The host computer can thus manage data from each process independent from control -- **thereby making control completely independent.**
- Obtaining required control-related data with optimal timing allows the control process to be divided into simple, independent modules -- **thereby modularizing the control process.**

## Easy On-site Management of Quality Control Data

With RFID, ideal systems can be configured for managing the production and quality control histories that will be increasingly crucial to future production lines. By separating the information management system from the control system, it becomes possible to manage information for a variety of different device types and processes designed by different vendors. Further, when it becomes necessary to upgrade management classifications and content, the new management system can be easily developed because it will not affect the control process.

## Improved Reliability and Maintenance

An RFID System makes it possible to build highly reliable, stable production lines because the system is unaffected by soiling and dust. With no need for tracking and control, the system is more robust against network errors and power interruptions. Modularized processing also simplifies troubleshooting in the event of a problem, and enables quick and easy line expansion or modification.

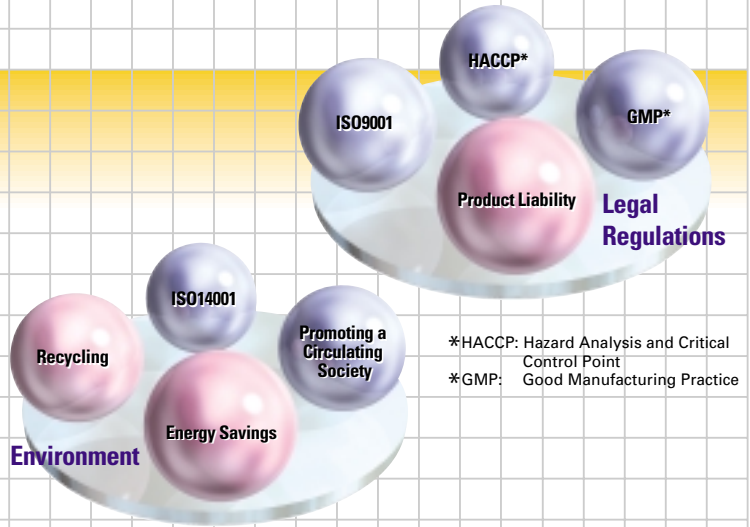
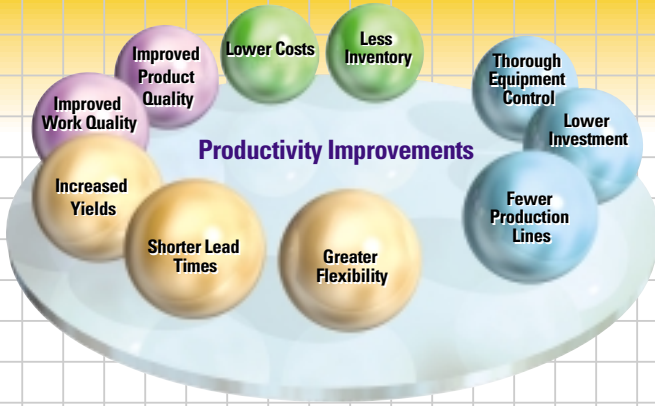


## Combinable with a Wide Variety of PLC Units

The ID Sensor Unit mounts to the control-system PLC to form a flexible system in combination with CPU Bus Units, Basic I/O Units, and Special I/O Units.

solves a variety of typical user problems.

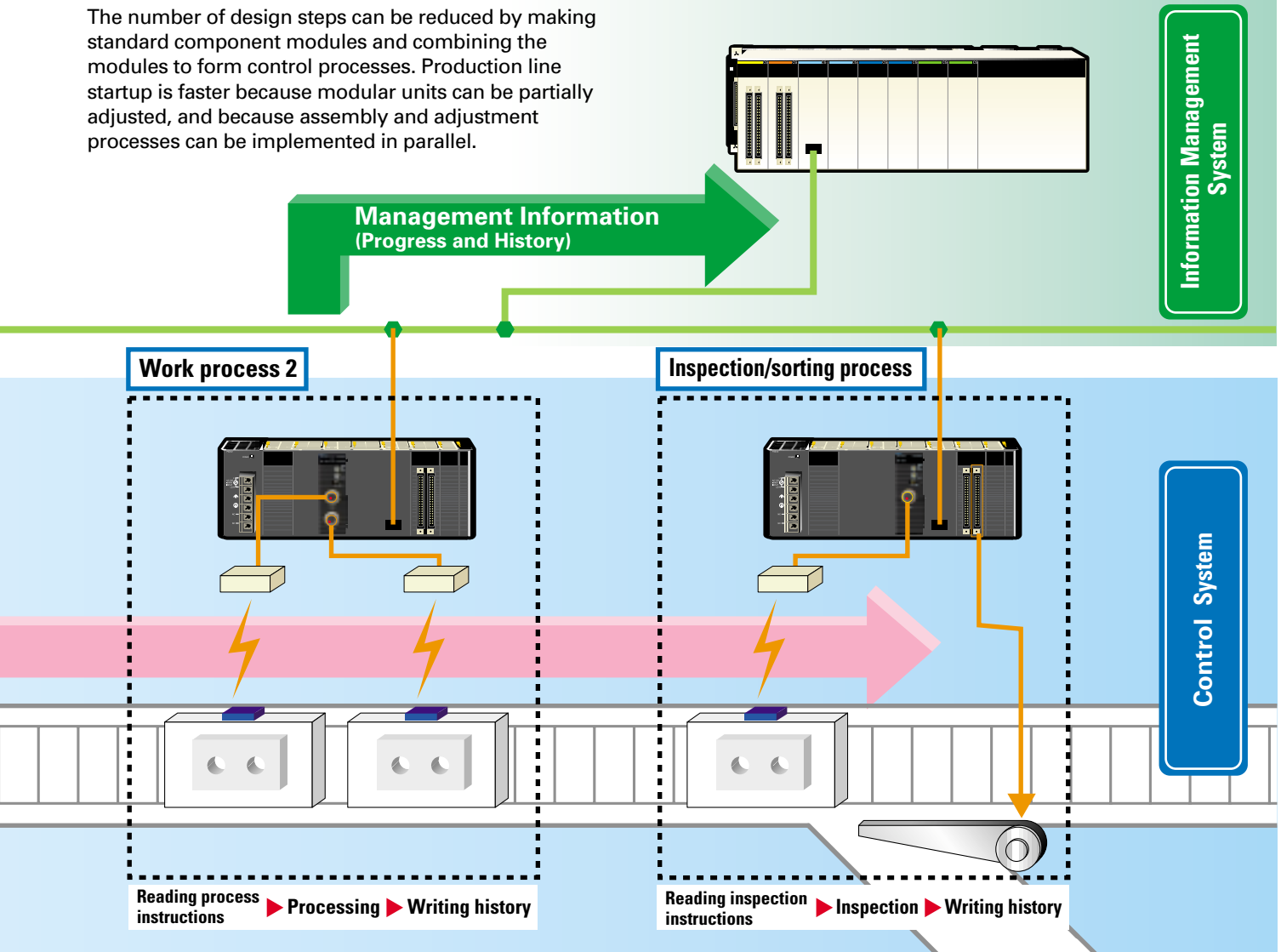
# RFID system



\*HACCP: Hazard Analysis and Critical Control Point  
\*GMP: Good Manufacturing Practice

## Shortens Lead Time for Designing

The number of design steps can be reduced by making standard component modules and combining the modules to form control processes. Production line startup is faster because modular units can be partially adjusted, and because assembly and adjustment processes can be implemented in parallel.



**Ideal Configuration of Distributed Control/Centralized Management Systems**  
 Highly independent distributed control is possible by combining ID Sensor Units with the processing functions and expandability of the PLC.

# Dramatic Improvements in Usability Contribute to Higher P

## Flexible System Configuration

### ● Both Single-head and Double-head Units Available for Each Series

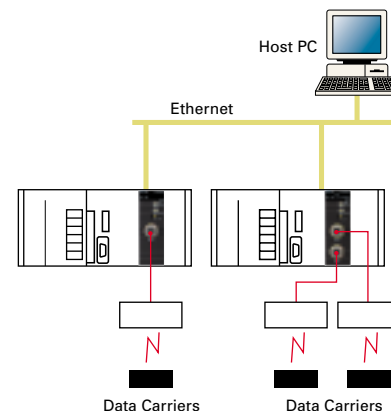
Both Single-head and Double-head Units are available for each of the CJ1 and CS1 Series. Select the PLC and ID Sensor Unit to match the system scale and the number of Read/Write Heads used. The Double-head Unit enables lowering the equipment investment for systems using two or more Read/Write Heads, while the CS1W-V600C12 enables mounting up to 10 Units per Rack to control up to 20 Read/Write Heads.

### ● Versatile Units and Freely Combinable Systems

A wide variety of Units can be combined to form the ideal system for each user's needs.

### ● Sharing Data over Various Networks

Data between the information management system and devices can be linked over different layered networks, such as DeviceNet, Controller Link, and Ethernet.



## Enables High-Performance Systems and Equipment

### ● Drastically Reduces Turnaround Time

The data transfer speed between CPU Unit and ID Sensor Unit is a fast 160 bytes/scan. This greatly shortens the processing time from initial communication with the Data Carrier through achieving the results.

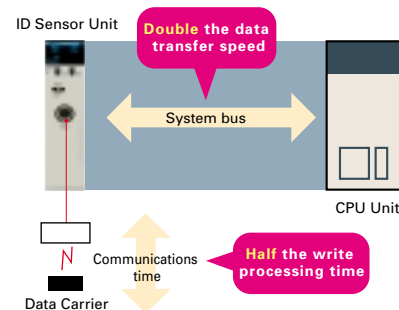
Example: Reading 2 Kbytes of data

**Approx. 4 s (1/2 the time of an RS-232C model at 9,600 bps)**

### ● Faster Command Processing

The processing time required to write or clear the data in batches for each process has been dramatically reduced. For example, 8 Kbytes can be cleared as one block using the Data Fill command (without verification).

**Approx. 17 s (1/2 the time required for previous OMRON models)**



## Supports a Wide Range of Applications

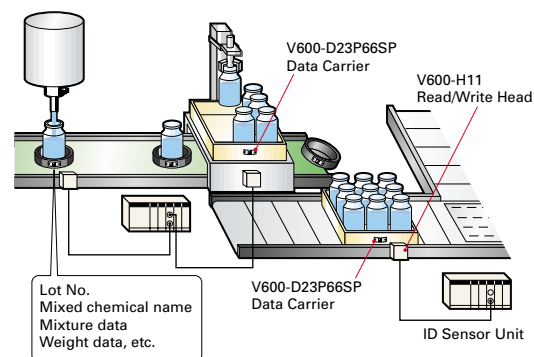
### ● Versatile Communications Commands

Various commands to easily control ID Sensor Units.

Command	Function
Read	Reads data from the specified area in bytes
Write	Writes data from the specified area in bytes
Bit Set	Writes "1" to the specified bits
Bit Clear	Writes "0" to the specified bits
Mask Bit Write	Writes only the specified bits
Calculation Write	Writes the result of the calculation with the current data
Data Fill	Writes the same data to the specified area
Data Check	Calculates or verifies the check code for the data
Number of Writes Control	Counts the number of writes to manage memory life
Copy	Copies data between two Read/Write Heads (applicable only for Double-head Units)

### ● Expanded Functions

The processing capability per command has been expanded to **2 kbytes**, making it possible to simplify control via repeat processing functions and standby settings in Auto mode.



The Copy command is particularly effective for pallet-changing processes.

## Improved Design and Development Efficiency

### ● Common Operations Allow Effective Utilization of Program Assets

Common operations among the CJ1 Series and CS1 Series, and among Single-head and Double-head ID Sensor Units, enable use of the same software modules. This ensures that the ladder programs that you have developed can be effectively utilized.

### ● Efficient Programming and Debugging

Programs are made more easily understandable and simpler by separating the control flags and data in command formats. DM Area data and I/O Unit signal data can be used directly as write data, and the read results can be directly output.

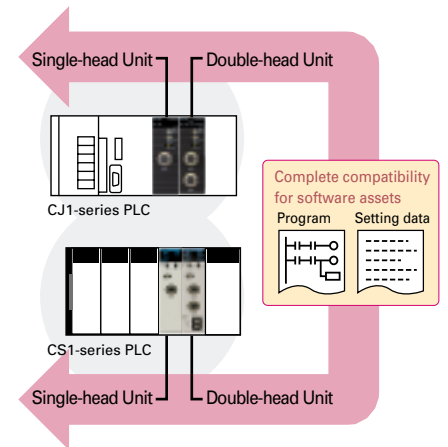
## Excellent Maintenance Operations

### ● Simple Test Function Included for System Startup

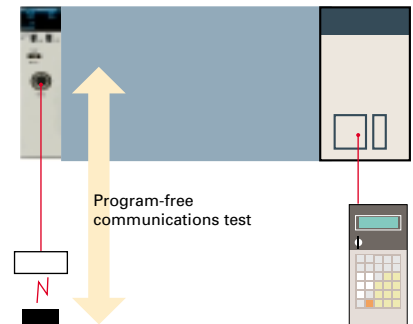
This test function lets you check the communications status with a single switch on the ID Sensor Unit, with no CPU Unit programming required to greatly speed up system startup. The communications status can be confirmed on the Unit's indicators and Programming Console for easy troubleshooting and problem-solving.

### ● Various Monitoring Functions Provided

Maintenance is greatly simplified by a power supply failure flag and monitoring functions for communications turnaround time and error codes. Preventive maintenance is possible by checking the turnaround time trend and error history.



Easy indicator confirmation



Detailed confirmation by Programming Console

## V600-series Inductive Coupling

More than 15 years of Experience in Many Industrial Applications. The V600 Series is OMRON's Environment-resistant and Reliable RFID System, which Boosts a High Market Share in Japan.

- Short-distance communications type (100 mm max.)
- Two Data Carriers available: an SRAM type with built-in battery (8 kbytes max.) and a battery-free EEPROM type (256 bytes max.)
- Data Carriers of various shapes available to meet each application.
- Data Carriers with excellent noise immunity, environment resistance, and heat resistance (150°C).

### Excellent Environmental Resistance



Data Carriers feature an IP67 enclosure rating (IEC). They can be used in places subject to water splashing, and offer strong resistance to vibration and impact, making them suitable for use under harsh conditions. The excellent environmental resistance of the Read/Write Heads also ensures stable performance.

### Versatile Lineup

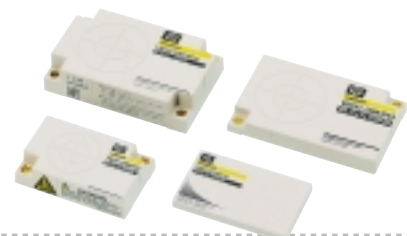
#### Battery-free EEPROM Data Carriers

- Use of EEPROM memory eliminates the need for a battery.
- Various thin, compact Data Carrier shapes available.
- Low cost.
- Usable in environments up to 150°C.
- Maximum 400,000 writes (at room temperature), and unlimited reading.



#### SRAM Data Carriers (with Built-in Battery)

- SRAM memory.
- Low-battery detection function.
- Large (8 kbyte) memory capacity.
- All models can be mounted to metallic surfaces.
- Battery-replacement type (2-year battery life) also available.



# ID Sensor Unit

CJ1W-V600C11/V600C12  
CS1W-V600C11/V600C12

## Create Flexible Systems Based on Distributed Control and Centralized Management

- These Units can be combined with OMRON's comprehensive lineup of PLC Units to create the optimum system.
- Operations are the same for Single-head and Double-head Units, enabling effective reuse of ladder programs.
- A simple test function allows communications status to be checked without any special programming in the CPU Unit to greatly speed up the system startup.
- Maintenance is greatly simplified by a power supply failure flag and a monitoring function for communications turnaround time and error codes.



## Ordering Information

### List of Models

Classification	Model	Specifications
ID Sensor Unit	CJ1W-V600C11	SYSMAC CJ1-series PLCs
	CJ1W-V600C12	
	CS1W-V600C11	SYSMAC CS1-series PLCs
	CS1W-V600C12	

## Specifications

### General Specifications

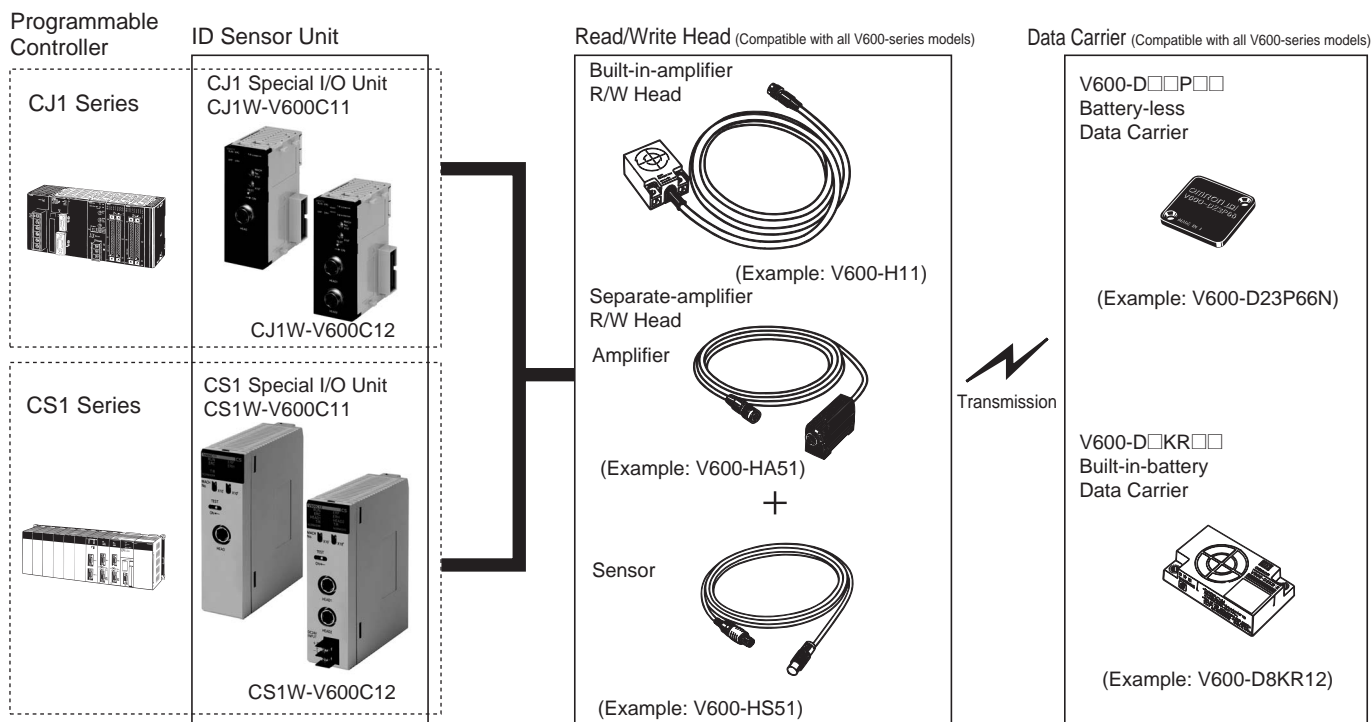
Item	Model	CJ1W-V600C11	CJ1W-V600C12	CS1W-V600C11	CS1W-V600C12
Applicable PLC		CJ1 Series		CS1 Series	
Unit classification		Special I/O Units			
Compatible RFID System		V600 Series			
Ambient operating temperature		0 to 55°C			
Storage temperature		-20 to 75°C			
Ambient operating humidity		10% to 90% (with no condensation)			
Vibration/shock resistance		Conforms to CJ1 Series.		Conforms to CS1 Series.	
External power supply		Not required.			24 VDC+10%/–15%
Current consumption	5 V	0.26 A	0.32 A	0.26 A	0.32 A
	24 V	0.12 A	0.24 A	---	---
	26 V	---	---	0.12 A	0 A (Not used.)
	External	---	---	---	0.36 A
Weight		Approx. 120 g	Approx. 130 g	Approx. 180 g	Approx. 300 g
Applicable standards		UL, CE (EMS: EN61000-6-2, EMI: EN50081-2)			

## Performance Specifications

Model	CJ1W-V600C11	CJ1W-V600C12	CS1W-V600C11	CS1W-V600C12
Item				
Unit number	0 to 95	0 to 94	0 to 95	0 to 94
Word allocation	10 words	20 words	10 words	20 words
Mounting position	CJ1 CPU Rack or Expansion Rack		CS1 CPU Rack or Expansion Rack/Long-distance Expansion Rack (The Units cannot be mounted to C200H I/O Expansion Racks or Remote I/O Slave Racks.)	
Number of mountable Units	The actual number of Units that can be mounted depends on the number of Units and their respective consumption currents. (Refer to data on current consumptions in the operation manual for the relevant CPU Unit.) The maximum number of ID Sensor Units (without any other Units) that can be mounted per Rack is as follows: CJ1W-V600C11: 4 per Rack CJ1W-V600C12: 2 per Rack CS1W-V600C11: 5 per Rack CS1W-V600C12: 10 per Rack (no restrictions) <b>Note:</b> The power supply for the CJ1W-V600C11/V600C12 is the CJ1W-PA205R.			
Communications control method	Controlled using the Special I/O Unit Area.			
Data transfer speed	Up to 2,048 bytes of data can be transferred at 160 bytes/scan (between the CPU Unit and the ID Sensor Unit)			
Compatible RFID System	V600 Series			
Possible number of R/W Heads	1 R/W Head	2 R/W Heads	1 R/W Head	2 R/W Heads
Commands (Figures in parentheses indicate the number of bytes that can be specified.)	Read/Write (1 to 2048) Data Fill (1 to 2048 or the last address) Copy (Double-head models only) (1 to 2048) Calculation Write (1 to 4) Bit Set/Bit Clear (1 to 4) Mask Bit Write (2) Data Check (2) Number of Writes Control (3)			
Communications processing time (See note.)	Command	Data Carrier with built-in battery	Battery-less Data Carrier (time priority mode)	
	Read	$1.8 \times N + 48.4$	$1.8 \times N + 79.0$	
	Write (with verify setting)	$4.2 \times N + 86.5$	$7.1 \times N + 180.4$	
	Write (without verify setting)	$2.2 \times N + 72.8$	$4.3 \times N + 132$	
Maintenance functions	Communications test function, processing result monitor function (communications TAT, error codes)			
Error detection functions	Detects CPU errors and errors in communications with the Data Carrier, and checks the power supply for the Head.			

**Note:** The command processing time can be calculated by adding the data transfer time to the communications processing time.

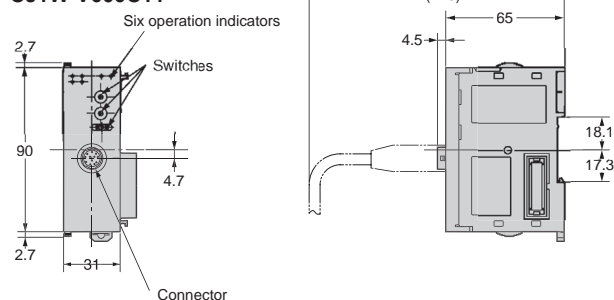
## System Configuration



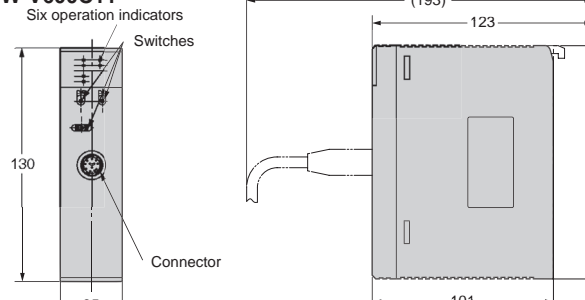
**Note:** For information related to Programmable Controller specifications, refer to the operation manual for relevant Programmable Controller.

# Dimensions

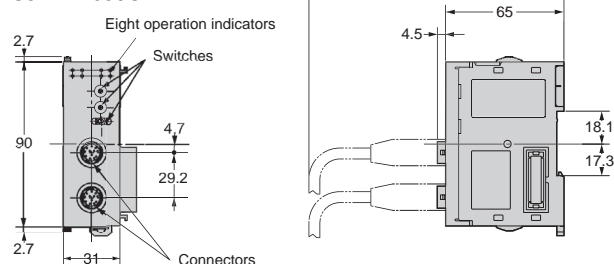
## CJ1W-V600C11



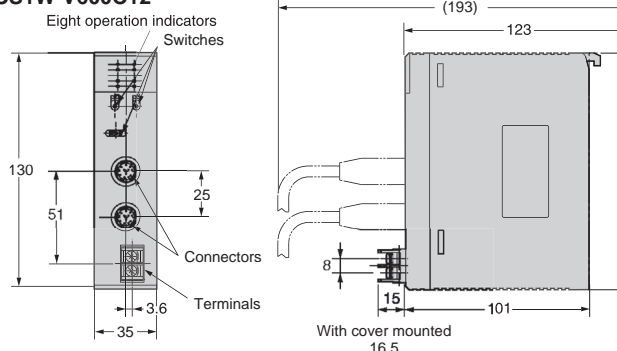
## CS1W-V600C11



## CJ1W-V600C12



## CS1W-V600C12



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.  
 To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

### Warranties, 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 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 the product in the customer's application or use of the product.

Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used.

Know and observe all prohibitions of use applicable to this product.

NEVER USE THE PRODUCT 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 PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Cat. No. Q130-E1-01

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

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