### 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 the 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, AND USER OR USER’S EMPLOYER ACKNOWLEDGES THAT THE USER IS SOLELY RESPONSIBLE FOR 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 actual 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.

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

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Authorized Distributor:

Note: Specifications subject to change without notice.
Quick and Simple Multi-axis System Implementation

Introducing a Position Control Unit that can control up to 16 axes across a MECHATROLINK-II* high-speed field network. With it, every aspect of multi-axis systems from machine design to future expansions can be changed quickly and simply.

Even smaller
Single-cable connection offers wiring flexibility

Previously, W-series Units had to be connected to a MECHATROLINK-II Module. Now, OMNUC W-series AC Servo Drivers with built-in MECHATROLINK-II communications are available. This reduces the volume to 2/3 or more of previous models.

Servo Driver connection was greatly simplified: just one shielded twisted-pair cable is needed with a MECHATROLINK-II network. The overall cable length is 50 m (30 m max. with 16 axes connected) and there is less wiring and more flexibility in device arrangement.

OMRON Standard Libraries

OMRON Standard Libraries are software applications that customers can load into their system and use without modification. The OMRON FB Library and Smart Active Parts (SAPs) Library are available now. These libraries simplify the software developed for interface components between Programmable Controllers (PLCs) or Programmable Terminals and various other control devices. They also improve the quality of the software by using standardized software components.

OMRON FB Library

The OMRON FB Library contains functional components for Programmable Controllers (PLCs). These components can be used by customers to produce finished programs that interface with various control devices in much less time. Since the components are standardized, they also improve the quality of the finished programs.

Smart Active Parts (SAPs) Library

The Smart Active Parts (SAPs) Library, formerly known as the Device Library, consists of screens with functions for Programmable Terminals. SAPs can be used on screens developed by customers to produce finished screens that interface with various control devices in much less time. Since the components are standardized, they also improve screen quality.

A Whole New World of Machine Control from OMRON

OMRON has developed a whole new environment that seamlessly integrates different control devices and networks over the entire life cycle of equipment and machines, ranging from design and startup to operation and maintenance. The system will still be viable as new systems are developed and new control devices and controllers become available. It all begins with OMRON Standard Libraries.

The OMRON FB Library and Smart Active Parts Library can be used with CE/CJ-series Programmable Controller CPU Units version 3.0 or later and NS-series Programmable Terminals version 6 or later, respectively.
Simplifying the Task of Designing Various Types of Control

Assembly Equipment
Absolute and relative positioning of multiple axes can be performed by manipulating bits directly from the PLC. The target position and target speed can be changed instantly even while the positioning operation is in progress simply by sending another command.

Processing Equipment
Position, speed, and torque can be controlled using a torque limit. The torque limit can be enabled or disabled and a new torque limit can be written while the axis is operating.

Feeders
Just as with position control, speed and torque can also be controlled by operating bits directly from the PLC. The position, speed, and torque can be changed while the axis is operating simply by turning ON individual control bits.

Conveyors
This example uses a W-series Servomotor with an Absolute Encoder. This eliminates establishing the origin each time the equipment is started up.

Full advantage can be taken of more advanced Servo Drivers and Servomotors to meet customer needs thanks to motion field network capabilities that include monitoring functions for various Servo Driver status conditions and a wide speed command range.
The Support Software for the NCF71 allows all parameters, including Servo Driver parameters, to be sent at one time.

**System Configuration Examples**

- **NS-series Programmable Terminals**
- **MECHATROLINK-II Communications**
- **OMRON W-series Servo Driver**
- **MECHATROLINK-II Application Module**
- **KEYPMC-W6022 Terminating Resistor**

Install the JEMPIC-W6022 Terminating Resistor on the final MECHATROLINK-II device in the network.

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**Ordering Information**

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSW-NCF1</td>
<td>CS W-NCF1</td>
<td>CS W-NCF1</td>
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<tr>
<td>CSW-NCF1</td>
<td>CS W-NCF1</td>
<td>CS W-NCF1</td>
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</table>

**Related Products**

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECHATROLINK-II Cable</td>
<td>CS1W-NCF71</td>
<td>CS1W-NCF71</td>
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</tbody>
</table>

Note: The CS-One is an integrated tool package that includes programming and monitoring software for OMRON PLCs and components.

**Specifications**

<table>
<thead>
<tr>
<th>Name</th>
<th>Specification</th>
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<th>Standards</th>
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</thead>
<tbody>
<tr>
<td>CS One FA Integrated Tool Package version 1.1</td>
<td>CSW-NCF1</td>
<td>CSW-NCF1</td>
<td>CSW-NCF1</td>
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</tbody>
</table>

**Support Software**

<table>
<thead>
<tr>
<th>Name</th>
<th>Specification</th>
<th>Model</th>
<th>Standards</th>
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<tbody>
<tr>
<td>CS One FA Integrated Tool Package version 1.1</td>
<td>CSW-NCF1</td>
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<td>CSW-NCF1</td>
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</tbody>
</table>

The versions of the Support Software for CS Series, CS1W-NCF71, CSW-NCF1, and MECHATROLINK-II Application Module can be found on the nameplate on the side of each device. If an earlier version of the device is used, it will not function properly. Always use products with version numbers in the table above.
The following combinations of Servo Drivers and Servomotors can be connected to Position Control Units.

**Combination**

1. R88D-WN, OMNUC W-series AC Servo Driver supporting MECHATROLINK-II communications
2. R88D-WT, OMNUC W-series AC Servo Driver with MECHATROLINK-II Interface Unit

OMNUC W-series AC Servomotor

Use a 200-V AC Servomotor for both 100-V and 200-V Servo Drivers.

**OMNUC W-series AC Servomotor**

- CylinderSlim profile
- 3000 r/min (5000 r/min)
- 1000 r/min (2000 r/min)

**Specifications**

<table>
<thead>
<tr>
<th>Type</th>
<th>Capacity</th>
<th>Shaft end (not using decelerator)</th>
<th>Enclosure rating</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 V</td>
<td>50 W</td>
<td>Straight</td>
<td>IP65</td>
<td>Low-inertia machines, Semi-robotic machines, Non-water resistant motors</td>
</tr>
<tr>
<td>100 V</td>
<td>100 W</td>
<td>With key and tap</td>
<td>IP67 (excluding shaft opening)</td>
<td>Machines with high torque, Simple processing machines, Assembly machines, Transfer machines</td>
</tr>
<tr>
<td>200 V</td>
<td>200 W</td>
<td>With key and tap</td>
<td>IP67 (excluding shaft opening)</td>
<td>Machines requiring high torque, Simple processing machines, Assembly machines, Transfer machines</td>
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<tr>
<td>3000 r/min</td>
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<td>6000 r/min</td>
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<td>Straight</td>
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<td>Low-inertia machines, Semi-robotic machines, Non-water resistant motors</td>
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<tr>
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*Power supply wiring must be partly changed when using 200-V single-phase Servo Drivers. The power supply input specifications are 220 to 230 VAC (+10% to −15%).

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**AC Servo Driver and Servomotor Selection**

**Servo Drives R88D**

- Robots
- Assembly machines
- Conveyors
- Low-inertia machines
- Machines with fast tact time
- Simple processing machines
- Assembly machines
- Transfer machines
- Machines requiring high torque
- Semiconductor manufacturing machines
- Food-processing machines
- AGVs
- Machines with limited motor depth
- Machines requiring water-resistant motors

**Servomotor R88M**

- Shaft end (not using decelerator)
- Approved
- Straight
- With key
- With tap
- Straight with tap

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**Diagram**

- CJ1W-NCF71
- CS1W-NCF71
• 200 VAC: 500 W, 750 W or 1 KW
R88D-WN05H-ML2/WN08H-ML2/WN10H-ML2

• 200 VAC: 1.5 KW
R88D-WN15H-ML2

• 200 VAC: 2 KW or 3 KW
R88D-WN20H-ML2/WN30H-ML2

• 200 VAC: 50 W, 100 W or 200 W
R88D-WNA5H-ML2/WN01H-ML2/WN02H-ML2

• 100 VAC: 50 W, 100 W or 200 W
R88D-WNA5L-ML2/WN01L-ML2/WN02L-ML2

• 100 VAC: 400 W
R88D-WN04L-ML2

• 200 VAC: 400 W
R88D-WN04H-ML2

Dimensions of AC Servo Driver with MECHATROLINK-II Communications

AC Servo Drivers