

New High-Performance
General-Purpose Inverter
R1 Series

OMRON

The Smart Power Inverter



SYSMAC
always in control

The Driving Evolution Continues

This new family member completes the OMRON inverter portfolio offering better control performance, improving application range usability and enhancing maintenance functions.

OMRON extends the Capacity offering solution in 400V from 0.4kW to 630kW inverter.



R1 Model	Max. motor output at constant torque	Max. motor output at variable torque
3G3R1-A4004	0.4 kW	0.4 kW
3G3R1-A4007	0.75 kW	0.75 kW
3G3R1-A4015	1.5 kW	1.5 kW
3G3R1-A4022	2.2 kW	2.2 kW
3G3R1-A4037	3.7 kW	3.7 kW
3G3R1-A4055	5.5 kW	7.5 kW
3G3R1-A4075	7.5 kW	11 kW
3G3R1-A4110	11 kW	15 kW
3G3R1-A4150	15 kW	18.5 kW
3G3R1-A4185	18.5 kW	22 kW
3G3R1-A4220	22 kW	30 kW
3G3R1-B4300	30 kW	37 kW
3G3R1-B4370	37 kW	45 kW
3G3R1-B4450	45 kW	55 kW
3G3R1-B4550	55 kW	75 kW
3G3R1-B4750	75 kW	110 kW
3G3R1-B4900	90 kW	132 kW
3G3R1-B411K	110 kW	160 kW
3G3R1-B413K	132 kW	200 kW
3G3R1-B416K	160 kW	220 kW
3G3R1-B420K	200 kW	280 kW
3G3R1-B422K	220 kW	315 kW
3G3R1-B428K	280 kW	355 kW
3G3R1-B431K	315 kW	400 kW
3G3R1-B435K	355 kW	500 kW
3G3R1-B440K	400 kW	560 kW
3G3R1-B450K	500 kW	630 kW
3G3R1-B463K	630 kW	710 kW

Evolved Performance

Supports applications that require high speed rotation and minimal speed and torque fluctuations.

40Hz Sensor-less and 200Hz Vector closed-loop control enhanced speed and 1000Hz current response.

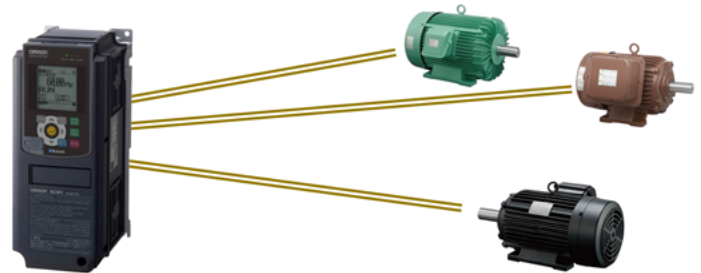
Increases the maximum output frequency of all control systems to 599 Hz.

Quadruple rating: HHD 150%/1min, 200% 3sc, HND 120%/1 min, HD 150%/1 min and ND 120%/1 min.

IM & PM Motor Control

Driving multiple motor types

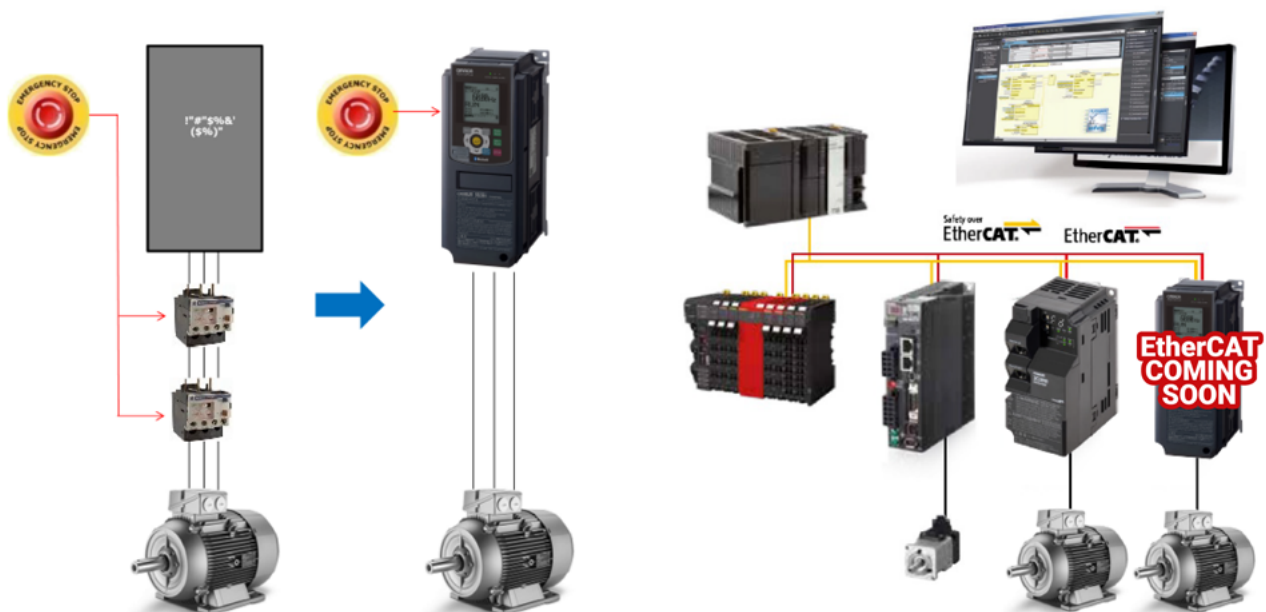
The R1 Series expands the choices of motors that can be used for the drive system. Standard induction motors, permanent magnet motors, direct drive PM motors (up to 128 poles), and special motors such as drum motors are supported. Comes with new auto-tuning features that enable multi-drive operation using induction and synchronous motors and helps saving energy.



Embedded STO safety function, SIL3/Cat.3/PLe

Safe working environment

Safety always comes first. Omron's scalable safety solutions allow you to design machine safety according to customer needs. The M1 and R1 Series expands the flexibility of your safety functions.



Designed for Freedom

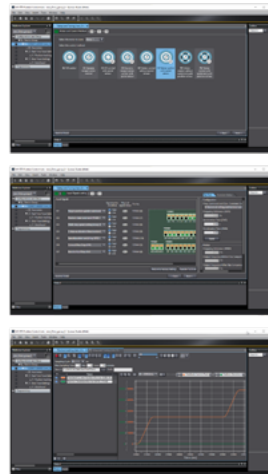
This new high-performance inverter is the big brother of M1 inverter. Same look & feel, same parameters, terminals and programming philosophy allowing operator to learn 2x1 quickly.

R1 is supported by the same tools as M1, including Sysmac Studio. It can also be programmed to embed intelligence directly into the inverter, enabling the implementation of both application-specific and general-purpose functions. In addition, the OMRON Mobile App can be used to upload, download, and edit inverter parameters.

Efficiency of assembly and configuration, Enhanced usability

One software for programming, configuration, simulation and monitoring.

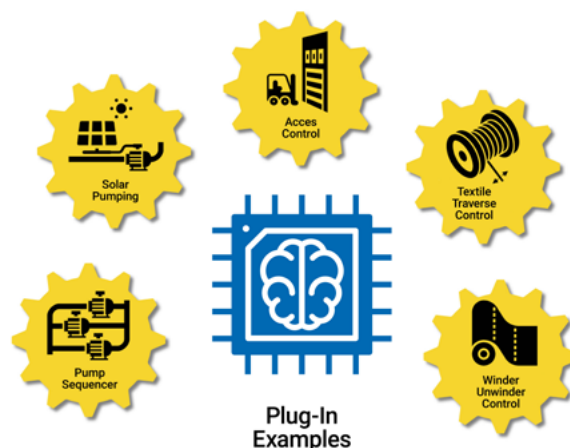
User friendly and helpful GUI for drive configuration by Sysmac Studio Drive Edition.



- Integrated configuration
- Setup & Tuning
- Wizards
- Data Trace Monitor
- Test Run
- Auto Tuning

Programming Plug-In software

The R1 Inverter can perform simple sequence control programmed (plug-in software). Crane control, tension control and other large-scale processes that require fast control speeds can be configured without a PLC, optimizing costs.



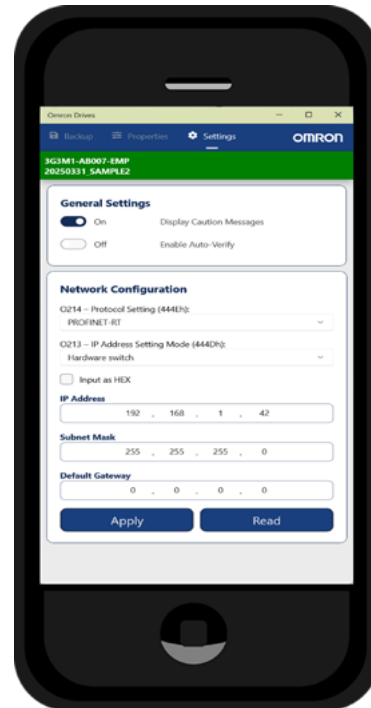
Mobile App.

Introducing OMRON's New Free Software for Drive Configuration

Experience seamless drive configuration with the OMRON Drives App-your all-in-one tool for smartphones, tablets, and PCs. Whether you're on the factory floor or working remotely, this free app puts control and convenience in your hands.

Key Features:

- **Free Tool for Smartphone, Tablet, and PC**
Enjoy full functionality across all your devices-no subscription required.
- **Available on Microsoft Store and Google Play Store**
Download instantly and get started in seconds.
- **Copy and Paste Functionality**
Save time with intuitive copy-paste support for drive parameters and settings.
- **M1-EMP Protocol Configuration**
Easily configure M1-EP protocol for streamlined communication and integration.
- **M1 & R1 Support**
Upload/download & parameter edition support.



New Keypad

New multi-function keypad

- Large graphical LCD panel.
- USB Connection.
- 10 languages available.
- SD card: Traceback data.
- RTC with battery
- Waterproof surface.
- Copy/Paste Functionality.
- Bluetooth connection.



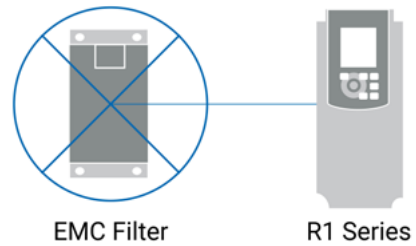
Equipped with a highly visible LCD, the operator panel can be connected directly to a PC via a USB Mini-B cable. It can also store up to three parameter sets, enabling easy upload and download of settings between inverters.

Compact Hardware Benefits

Built-in EMC filter

Built-in noise filters corresponding to the European EMC Directive IEC61800 -3 2nd Environment Category C3 and UL Power Conversion Equipment/UL61800-5-1 will save external hardware and extra cost.

Built into inverter



Built-in Braking Unit and Braking Resistor

Built-in Braking Transistor

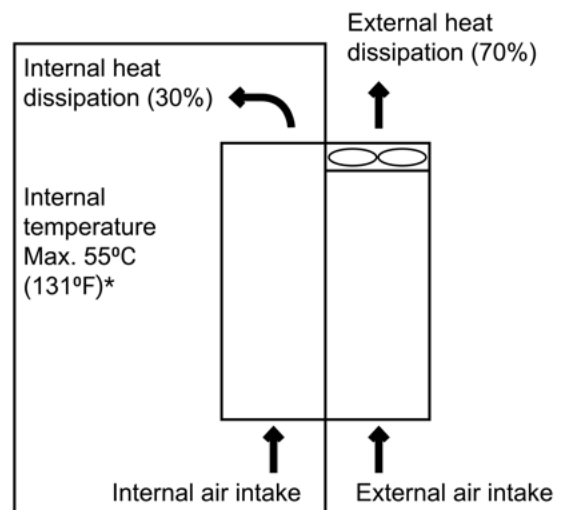
Built-in braking transistor up to 75kW.

Built-in Braking Resistor

Built-in braking Resistor included in the heatsink up to 7.5kW.

Optional IP55 solutions

IP55 protection for the inverter's main cooling unit contributes to enhanced cooling outside the panel, lower costs, and downsizing. For models from 30kW up to 630kW.



Durability

Extended Machine Lifetime

New functionality extending the life of your machine:

- IGBT lifetime warning
- Cooling airflow monitoring
- Capacitor diagnostics
- 10-years (or more) design life for major components

Compliant with European RoHS Directive
PCB Reinforcement of substrate coating.



New Predictive Maintenance Functions

- Warning of expected IGBT life.
- Warning reduced cooling airflow.
- Alarm data + RTC information.
- Traceback information.

10-year design life for major components

High Performance Control, Usability & Durability

- Serviceable parts inside the inverter have been designed for 10 years life (including cooling fan).
- Improved control and power resistance to harsh environments
(Supports IEC60721-3-3/JIS C60721-3-3 Class 3C2 as standard).

Long life expectancy (main components)

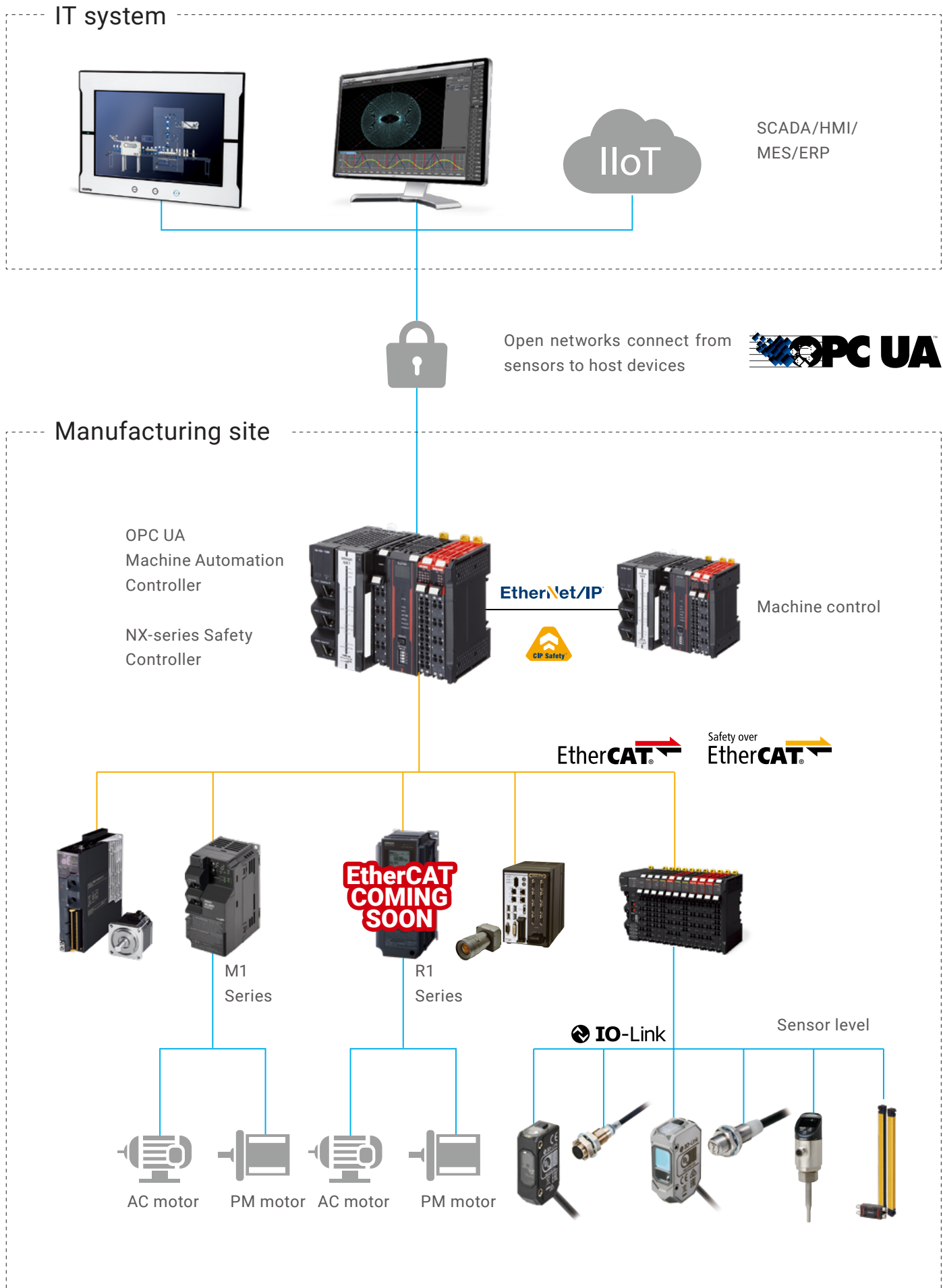
Many of the serviceable parts inside the inverter have been designed to meet customer equipment maintenance cycles.



* The above values refer to the design life (calculated values) and are not guaranteed values.

Main circuit capacitor	PCB Electrolytic capacitor	Cooling fan
		
Life expectancy conditions Ambient temperature 40°C, load factor 100% (HND specification), 80% (HND specification)		

Reliable and Sustainable Manufacturing



Target Applications

Supports applications that require high speed rotation and minimal speed and torque fluctuations.
Positioning and orientation control, Master-follower functionality, Brake Control etc...

Compressors



Machine Tools



Press Machines



Winding Machines



Hoists



Stacker cranes



Crushing machines



Fans and pumps



Would you like to know more?

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