OMRON

MX2 IP54 INVERTER

Flexibility and robust design for standalone solutions

» Robust metal housing

» Freedom for user customization

» Built-in logic programming

realizing

MX2 IP54
Robust and flexible inverter...

The MX2 IP54 inverter is designed in a robust housing for distributed installation. A built-in class 1 EMC filter, the easy wiring access and the front-mounted USB connector make installation and commissioning simple. The freedom for users to customize the hardware by adding accessories provides hardware flexibility whilst the built-in logic programming is ideal when designing decentralized projects. Finally, by using the standard MX2 series functionality and communication option boards, the MX2 IP54 is the perfect choice for your standalone inverter solutions.

Industrial communication networks
• Modbus RS485 built-in
• Option boards for EtherCAT, DeviceNet, PROFIBUS, CompoNet, ML-II and EtherNet/IP

Front-mounted USB connector
• Easy access for set-up and commissioning
• Mini-B type connector same as standard MX2 series

Wiring access holes
• 6 access holes for application wiring. Ideal for power supply, motor power, I/O and communication cables.

Note: The cable glands are not delivered with the MX2 IP54 housing.

IP54 ❄ ⚠

Robust metal housing

- Dust and splash water protection
- 4 housing types covering full power range from 0.1 to 15 kW

Ether**CAT**

DeviceNet

PROFI BUS

CompoNet

MECHATROLINK

EtherNet/IP

Built-in RFI filter

- Class 1 EMC filter
- According with EN61800-3 requirements for use in domestic or industrial environments

Freedom for user customisation

- Front panel holes prepared for accessories such as indicators, push-button, switches etc.
- DIN rail mounting options: safety relay, motor contactor, external power supply etc.

Note: The MX2 housings are delivered with the panel holes covered by IP54 blinding plugs. The panel holes are 22.3 mm in diameter.

... born to drive machines

The MX2 is specifically designed to drive machines. It has been developed to harmonise advanced motor and machine control. Thanks to its advanced design and algorithms the MX2 provides smooth motor control down to zero speed, plus precise operation for fast cyclic operations and torque control capability in open loop. The MX2 also gives you comprehensive functionality for machine control such as positioning, speed synchronisation and logic programming. The MX2 is fully integrated within the Omron Sysmac automation platform.

Text editor and Flow chart programming
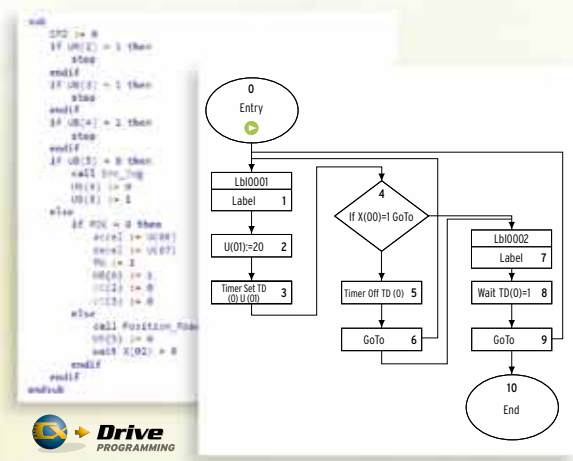
Built-in logic programming
• Drive Programming functionality for decentralized machine control
• Flow chart and text editor programming languages
• 5 tasks running in parallel
• Up to 1000 lines per program

Positioning mode

Output frequency

Position

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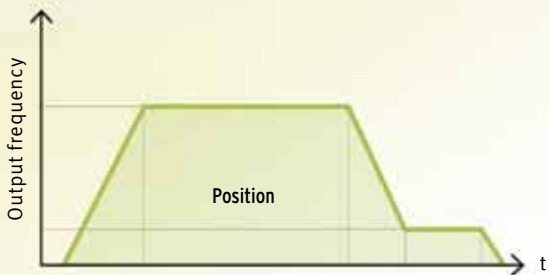
Positioning functionality
• Simple positioning without the need of an external controller
• Selection of up to 8 pre-set positions plus homing function
• Switching between speed and position control modes

Motor efficiency control

- Double rating VT 120%/ min and CT 150%/min
- Energy saving function
- IM and PM motor control

Quick response to load fluctuation

- MX2 provides accurate speed control with less than 2% error at 1 Hz
- Stable control without decreasing machine speed improves quality and productivity
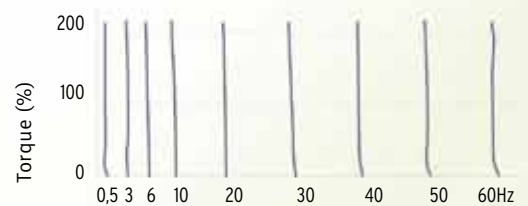
Load fluctuation

Load

Speed

MX2 inverter

Conventional inverter

Time
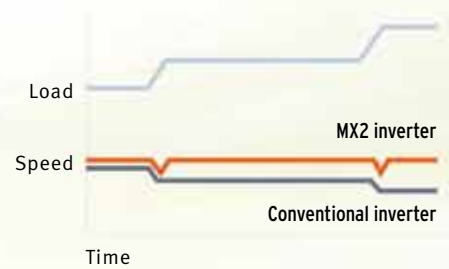
200% starting torque

- Near stand-still operation (0.5Hz)
- Smooth control of high inertia loads
- Control of fast cyclic loads

Frequency response vs Torque

(Example with 7.5kW 4-pole motor)

Torque (%)

200

100

0

0,5 3 6 10   20   30   40   50 60Hz

Product overview

MX2 IP54 features

- Power range from 0.1 to 15 kW
- Built-in Class 1 EMC filter
- Ready to add hardware accessories
- 200% starting torque
- Torque control in open loop
- Double rating VT 120%/1 min and CT 150%/ 1 min
- IM and PM motor control
- Built-in logic programming

Reference list

| Voltage class | Specifications | | | | Model | | House type |
| | Constant torque | | Variable torque | | | | |
	Max motor kW	Rated current A	Max motor kW	Rated current A	Narrow housing type	Ready for user customization	
Single-phase 200 V	0.1	1.0	0.2	1.2	3G3MX2-DB001-E	3G3MX2-DB001-EC	Type 1 (ending with -E)
	0.2	1.6	0.4	1.9	3G3MX2-DB002-E	3G3MX2-DB002-EC	
	0.4	3.0	0.55	3.5	3G3MX2-DB004-E	3G3MX2-DB004-EC	
	0.75	5.0	1.1	6.0		3G3MX2-DB007-EC	
	1.5	8.0	2.2	9.6		3G3MX2-DB015-EC	
	2.2	11.0	3.0	12.0		3G3MX2-DB022-EC	Type 2 (ending with –EC)
Three-phase 200 V	0.1	1.0	0.2	1.2	3G3MX2-D2001-E	3G3MX2-D2001-EC	
	0.2	1.6	0.4	1.9	3G3MX2-D2002-E	3G3MX2-D2002-EC	
	0.4	3.0	0.55	3.5	3G3MX2-D2004-E	3G3MX2-D2004-EC	
	0.75	5.0	1.1	6.0	3G3MX2-D2007-E	3G3MX2-D2007-EC	
	1.5	8.0	2.2	9.6		3G3MX2-D2015-EC	
	2.2	11.0	3.0	12.0		3G3MX2-D2022-EC	
	3.7	17.5	5.5	19.6		3G3MX2-D2037-EC	
	5.5	25.0	7.5	30.0		3G3MX2-D2055-EC	Type 3
	7.5	33.0	11	40.0		3G3MX2-D2075-EC	
	11	47.0	15	56.0		3G3MX2-D2110-EC	Type 4
	15	60.0	18.5	69.0		3G3MX2-D2150-EC	
Three-phase 400 V	0.4	1.8	0.75	2.1		3G3MX2-D4004-EC	Type 2
	0.75	3.4	1.5	4.1		3G3MX2-D4007-EC	
	1.5	4.8	2.2	5.4		3G3MX2-D4015-EC	
	2.2	5.5	3.0	6.9		3G3MX2-D4022-EC	
	3.0	7.2	4.0	8.8		3G3MX2-D4030-EC	
	4.0	9.2	5.5	11.1		3G3MX2-D4040-EC	
	5.5	14.8	7.5	17.5		3G3MX2-D4055-EC	Type 3
	7.5	18.0	11	23.0		3G3MX2-D4075-EC	
	11	24.0	15	31.0		3G3MX2-D4110-EC	Type 4
	15	31.0	18.5	38.0		3G3MX2-D4150-EC	

Note: The models ready for user customization are delivered with the front panel holes and with the DIN rail inside housing.

Communication option boards and accessories

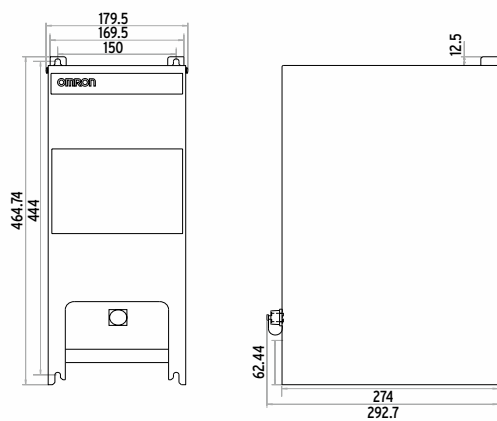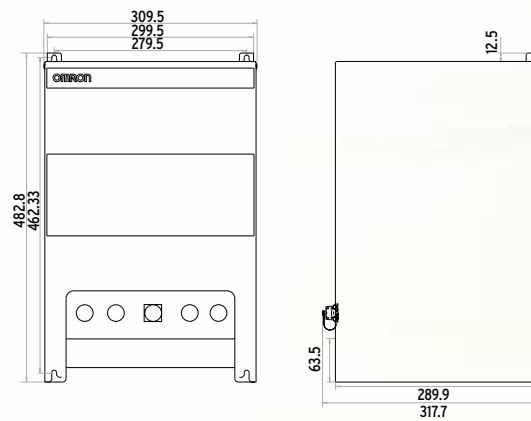| Description	Model
Profibus option board	3G3AX-MX2-PRT
DeviceNet option board	3G3AX-MX2-DRT
EtherCAT option board	3G3AX-MX2-ECT
CompoNet option board	3G3AX-MX2-CRT
MECHATROLINK-II option board	3G3AX-MX2-MRT
EtherNet/IP option board	3G3AX-MX2-EIP
PC configuration cable (mini USB to USB connector cable)	AX-CUSBM002-E

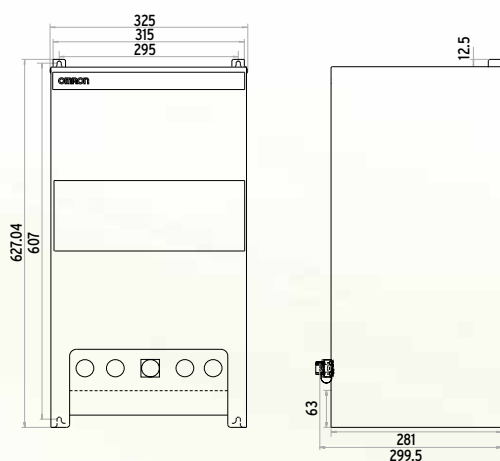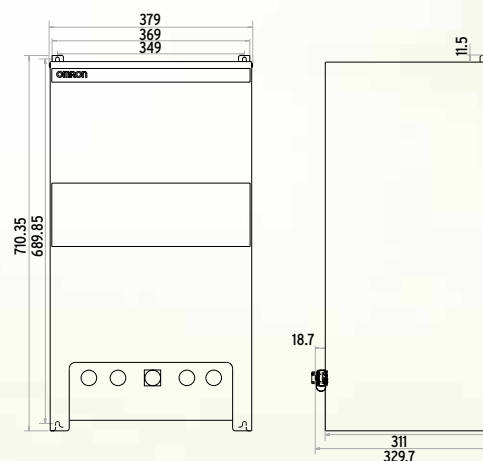Housing type 1   Housing type 2   Housing type 3   Housing type 4

Dimensions

Type 1

Type 2

Type 3

Type 4

Software

Description	Model
Configuration and monitoring software tool	CX-Drive
Software including CX-Drive	CX-One
Software tool for Energy Saving calculation	€Saver

OMRON

Automation Systems
• Programmable logic controllers (PLC) • Human machine interfaces (HMI) • Remote I/O
• Industrial PC's • Software

Motion & Drives
• Motion controllers • Servo systems • Inverters • Robots

Control Components
• Temperature controllers • Power supplies • Timers • Counters • Programmable relays
• Digital panel indicators • Electromechanical relays • Monitoring products • Solid-state relays
• Limit switches • Pushbutton switches • Low voltage switch gear

Sensing & Safety
• Photoelectric sensors • Inductive sensors • Capacitive & pressure sensors
• Cable connectors • Displacement & width-measuring sensors • Vision systems
• Safety networks • Safety sensors • Safety units/relay units • Safety door/guard lock switches

CD_EN-01+MX2-IP54+Brochure