OMRON

3G3MX2 AC Drive
Born to drive machines

» High performance micro drive for industrial applications

» Simple to integrate with many communication options

» Built-in safety inputs reduce hardware and wiring

Harmonized motor and machine control

The 3G3MX2 is specifically designed to drive machines. It has been developed to harmonize advanced motor and machine control.

Thanks to its advanced design and algorithms the 3G3MX2 provides smooth control down to zero speed, plus precise operation for fast cyclic operations and torque control capability in open loop.

The 3G3MX2 also gives you comprehensive functionality for machine control such as positioning, speed synchronization and logic programming. The 3G3MX2 is fully integrated within the Omron smart automation platform. The 3G3MX2 is the child of a true leader in machine automation.

MOTOR CONTROL

200% starting torque
- Near stand-still operation (0.5 Hz)
- Smooth control of high inertia loads
- Control of fast cyclic loads

Torque control in open loop
- Ideal for low to medium torque applications
- Can replace a flux vector or servo drive in suitable systems

Special motors
- Permanent magnet motors
- High speed motors up to 1000 Hz

One parameter auto-tuning
- Just by entering the power rating of the motor the 3G3MX2 gives you smooth and safe operation

MACHINE CONTROL

Safety inside
- Conforms to safety norm ISO-13849 CAT3 performance level PLD
- 2 Safety inputs
- External device monitoring (EDM)

Logic programming
- Flow chart programming
- Intuitive – up to 5 tasks in parallel

Positioning
- Up to 8 pre-set positions with "Homing"
- Speed synchronization

Integrated in the Omron Smart Automation
- CX-Drive programming tool connected via integrated USB port on 3G3MX2.
- Modbus RS485 built-in
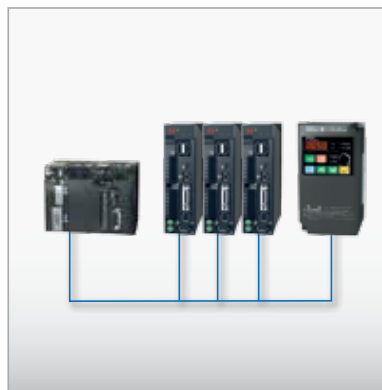- Option units for EtherCAT, Profibus, DeviceNet, ML-II and more...

100% Control...

High starting torque and torque control capability in open loop mode give you full control of your machine dynamics and performance. Options for all of the major fieldbus systems and a 24 VDC external supply keeps you in full control of your machine operation.
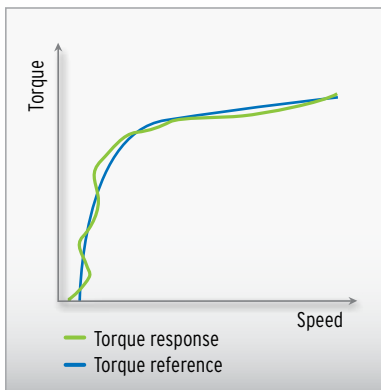

Torque master

The 3G3MX2 delivers 200% starting torque near stand-still (0.5 Hz) and can operate in torque control in open loop mode. This allows the 3G3MX2 to be used in applications where closed loop AC vector drives were previously used.

Easy network integration

Built-in RS485 Modbus communications and the possibility for integration in standard industrial networks, such as DeviceNet, Profibus, CANopen, CompoNet, ML-II or EtherCat makes the 3G3MX2 exceptionally easy to integrate.
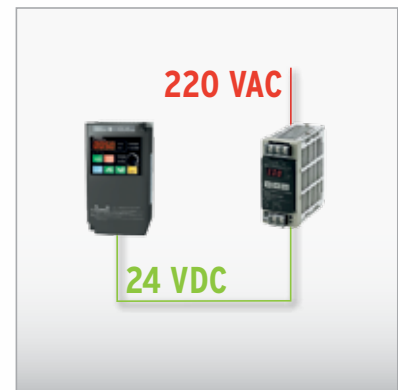
External 24 VDC for continuous operation

With no additional hardware, a 24 VDC connection to the 3G3MX2 ensures the CPU is always in control, even if the main input is removed. This feature is vital in providing a controlled stop in emergency situations and in keeping the network communications operating.

...0% risk!

Safety is embedded in the 3G3MX2, according to ISO 13849-1, Cat 3, with two safety inputs and an External Device Monitoring (EDM) output.
No external contactors on the motor side are required, meaning simpler wiring for the user.
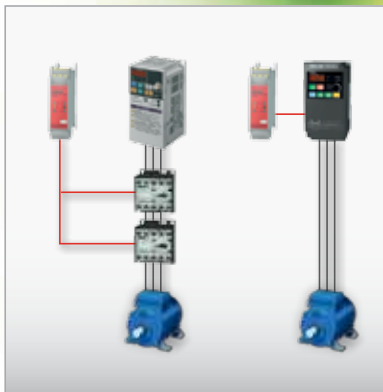
Safety embedded; ISO 13849-1, cat 3

Dual contactors at the output of the inverter are no longer required. Direct connection to a safety controller ensures compliance to ISO 13849-1, cat 3.

EDM monitoring output

Safety redundancy input
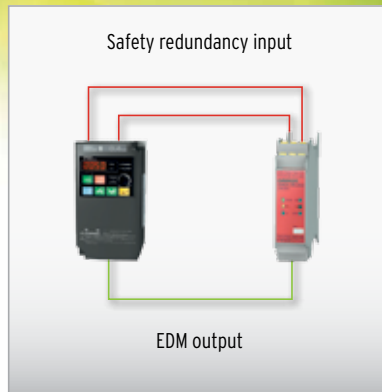
EDM output

An External Device Monitoring (EDM) output confirms the safety status of the inverter, saving you the cost and wiring of external devices to carry out the same function.
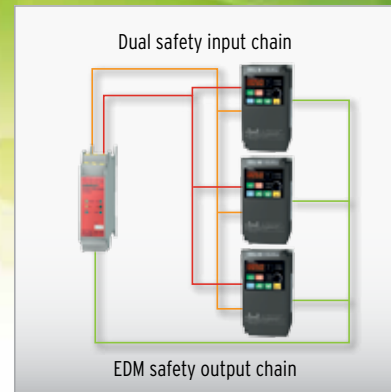
Direct integration into the safety circuit

Dual safety input chain

EDM safety output chain

3G3MX2 inverters can fit easily into the safety circuit. The safety inputs can be linked from one inverter to another without additional safety relays.

Position and run!

The 3G3MX2 is a drive and position controller in one, ideal for modular machines where moderate positional accuracy is required. Speed synchronization is also possible, with no additional programming required.

Speed synchronization

With no external hardware required, and via standard parameter settings, speed synchronization can be achieved. The 3G3MX2 will act as a speed follower to an external pulse generator/ encoder signal up to 32 KHz.

Positioning functionality

Specially developed application functionality enables the 3G3MX2 to solve simple positioning tasks without the need for an external controller. Up to 8 positions, plus home, can be selected by the user, and furthermore, the 3G3MX2 can be switched between speed and position mode.

Program and play!

The 3G3MX2 gives you the power to create smart solutions using PLC functionality, as standard. Via an intuitive flow chart programming tool, you can create programs with up to 1000 lines of code and with 5 tasks running in parallel.
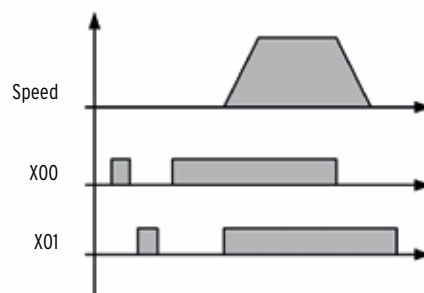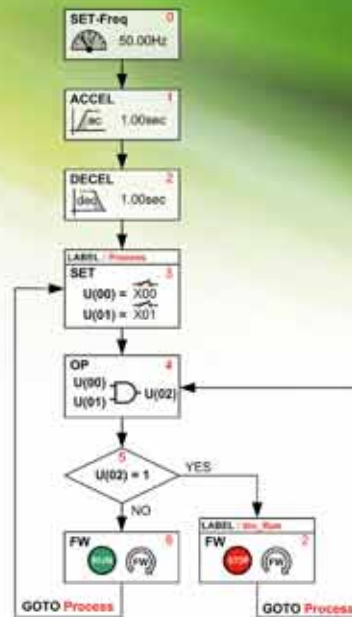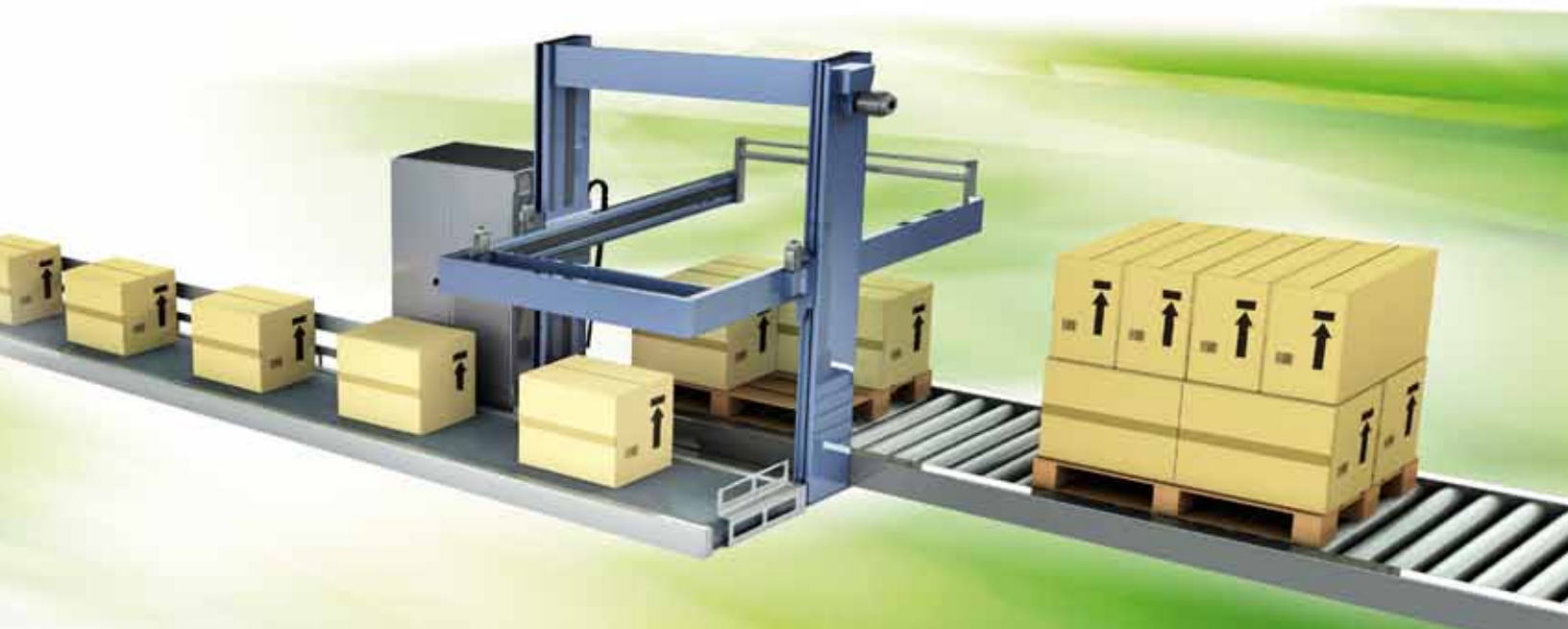
Free to program

• Intuitive and user friendly flow chart programming

• Integrated in CX-Drive

• Up to 1000 lines in a program

• 5 tasks can run in parallel

3G3MX2 AC Drives

With Machine Automation in mind

- Current vector control
- High starting torque: 200% at 0.5Hz
- Double rating VT 120%/1min and CT 150%/1min
- Speed range up to 1000 Hz
- IM & PM motor control
- Torque control in open loop vector
- Positioning functionality
- Built-in application functionality (i.e. Brake control)
- User programmable as standard
- Safety embedded compliant with ISO13849-1 (double input circuit and external device monitor EDM)
- USB port for PC programming
- 24 VDC backup supply for control board
- Fieldbus communications: Modbus, DeviceNet, Profibus, CompoNet, EtherCAT, Mechatrolink-II and CanOpen
- PC configuration tool: CX-Drive
- RoHS, CE, cULus

Ratings

- 200 V Class single-phase 0.1 to 2.2 kW (1/8 to 3.0 HP)
- 200 V Class three-phase 0.1 to 15.0 kW (1/8 to 20 HP)
- 400 V Class three-phase 0.4 to 15.0 kW (1/2 to 20 HP)

System configuration

Power Supply

MCCB

① Input AC Reactor

① Filter

3G3MX2

① Choke

Motor

Ground

② USB Cable

⑤ Software Tools CX-Drive CX-One

② Remote Operator Extension Cable

② Remote Operator LCD 5 lines

③ Communication option

④ Braking Resistor

① DC Reactor

① Output AC Reactor
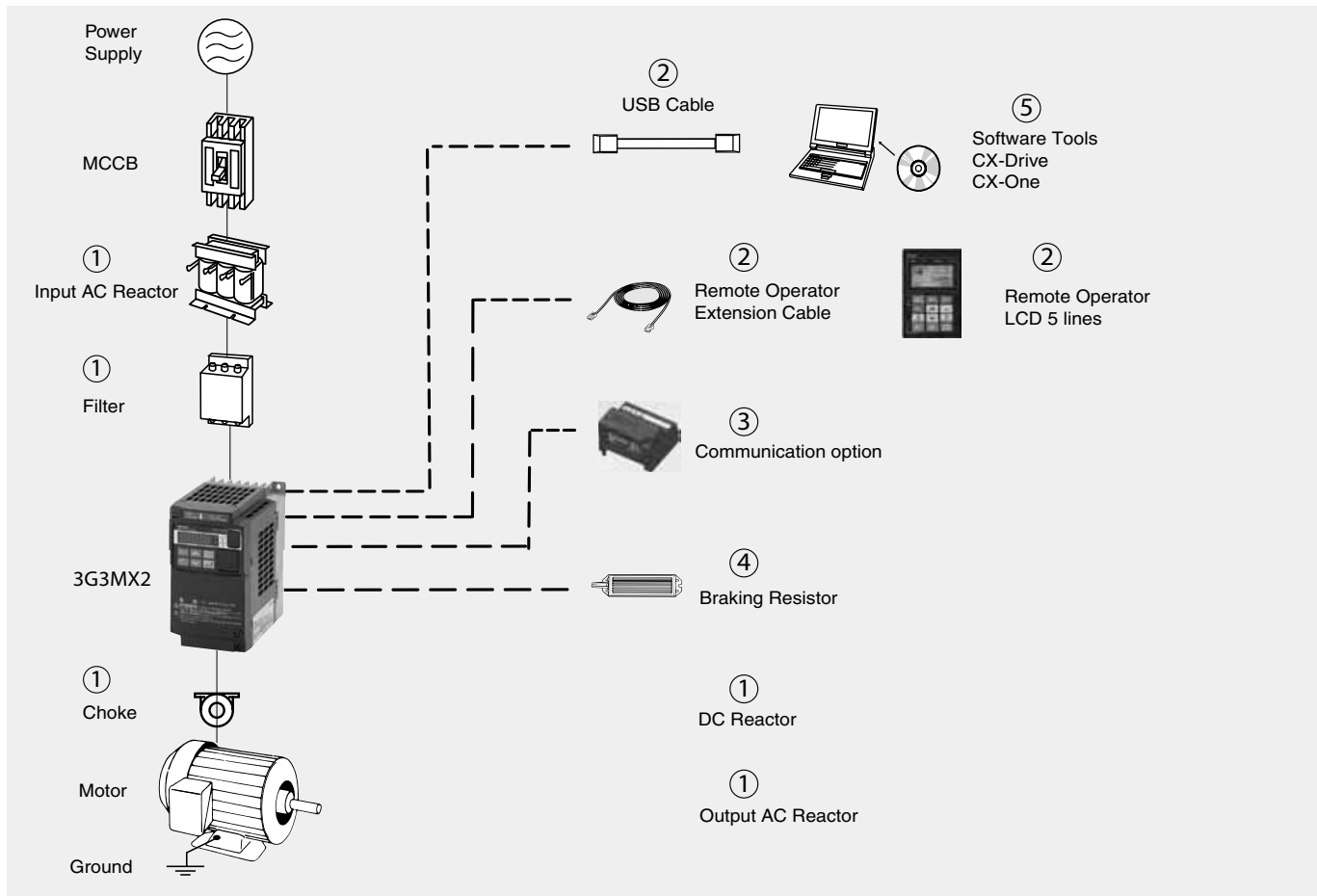
Ordering Information

3G3MX2 AC Drives

Specifications							Model
Voltage class	Constant torque (Heavy load)			Variable torque (Light load)			Standard
	Max motor kW	Max motor HP	Rated current A	Max motor kW	Max motor HP	Rated current A	
1-phase 200 VAC	0.1	1/8	1.0	0.2	1/4	1.2	3G3MX2-AB001-E
	0.2	1/4	1.6	0.4	1/2	1.9	3G3MX2-AB002-E
	0.4	1/2	3.0	0.55	3/4	3.5	3G3MX2-AB004-E
	0.75	1	5.0	1.1	1 1/2	6.0	3G3MX2-AB007-E
	1.5	2	8.0	2.2	3	9.6	3G3MX2-AB015-E
	2.2	3	11.0	3.0	4	12.0	3G3MX2-AB022-E
3-phase 200 VAC	0.1	1/8	1.0	0.2	1/4	1.2	3G3MX2-A2001-E
	0.2	1/4	1.6	0.4	1/2	1.9	3G3MX2-A2002-E
	0.4	1/2	3.0	0.55	3/4	3.5	3G3MX2-A2004-E
	0.75	1	5.0	1.1	1 1/2	6.0	3G3MX2-A2007-E
	1.5	2	8.0	2.2	3	9.6	3G3MX2-A2015-E
	2.2	3	11.0	3.0	4	12.0	3G3MX2-A2022-E
	3.7	5	17.5	5.5	7 1/2	19.6	3G3MX2-A2037-E
	5.5	7 1/2	25.0	7.5	10	30.0	3G3MX2-A2055-E
	7.5	10	33.0	11	15	40.0	3G3MX2-A2075-E
	11	15	47.0	15	20	56.0	3G3MX2-A2110-E
	15	20	60.0	18.5	25	69.0	3G3MX2-A2150-E
3-phase 400 VAC	0.4	1/2	1.8	0.75	1	2.1	3G3MX2-A4004-E
	0.75	1	3.4	1.5	2	4.1	3G3MX2-A4007-E
	1.5	2	4.8	2.2	3	5.4	3G3MX2-A4015-E
	2.2	3	5.5	3.0	4	6.9	3G3MX2-A4022-E
	3.0	4	7.2	4.0	5	8.8	3G3MX2-A4030-E
	4.0	5	9.2	5.5	7 1/2	11.1	3G3MX2-A4040-E
	5.5	7 1/2	14.8	7.5	10	17.5	3G3MX2-A4055-E
	7.5	10	18.0	11	15	23.0	3G3MX2-A4075-E
	11	15	24.0	15	20	31.0	3G3MX2-A4110-E
	15	20	31.0	18.5	25	38.0	3G3MX2-A4150-E

① Line Filters (3G3AX-FIM)

Inverter		Line filter Rasmi	
Voltage	Model 3G3MX2-☐	Reference	Rated current (A)
1-phase 200 VAC	AB001/AB002/AB004	3G3AX-FIM1010-RE	10
	AB007	3G3AX-FIM1014-RE	14
	AB015/AB022	3G3AX-FIM1024-RE	24
3-phase 200 VAC	A2001/A2002/A2004/A2007	3G3AX-FIM2010-RE	10
	A2015/A2022	3G3AX-FIM2020-RE	20
	A2037	3G3AX-FIM2030-RE	30
	A2055/A2075	3G3AX-FIM2060-RE	60
	A2110	3G3AX-FIM2080-RE	80
	A2150	3G3AX-FIM2100-RE	100
3-phase 400 VAC	A4004/A4007	3G3AX-FIM3005-RE	5
	A4015/A4022/A4030	3G3AX-FIM3010-RE	10
	A4040	3G3AX-FIM3014-RE	14
	A4055/A4075	3G3AX-FIM3030-RE	23
	A4110/A4150	3G3AX-FIM3050-RE	50

Input AC Reactors (3G3AX-RAI)

Inverter		AC Reactor
Voltage	Model 3G3MX2-☐	Reference
3-phase 200 VAC	A2002/A2004/A2007	3G3AX-RAI02800080-DE
	A2015/A2022/A2037	3G3AX-RAI00880200-DE
	A2055/A2075	3G3AX-RAI00350335-DE
	A2110/A2150	3G3AX-RAI00180670-DE
1-phase 200 VAC	AB002/AB004	Under development
	AB007	
	AB015/AB022	
3-phase 400 VAC	A4004/A4007/A4015	3G3AX-RAI07700050-DE
	A4022/A4030/A4040	3G3AX-RAI03500100-DE
	A4055/A4075	3G3AX-RAI01300170-DE
	A4110/A4150	3G3AX-RAI00740335-DE

Ordering Information

① DC Reactors (3G3AX-RC)

1-phase 200 VAC		3-phase 200 VAC		3-phase 400 VAC	
Inverter	DC Reactor	Inverter	DC Reactor	Inverter	DC Reactor
3G3MX2-AB001	3G3AX-RC10700032-RE	3G3MX2-A2001	3G3AX-RC21400016-RE	3G3MX2-A4004	3G3AX-RC43000020-RE
3G3MX2-AB002		3G3MX2-A2002		3G3MX2-A4007	3G3AX-RC27000030-RE
3G3MX2-AB004	3G3AX-RC06750061-RE	3G3MX2-A2004	3G3AX-RC10700032-RE	3G3MX2-A4015	3G3AX-RC14000047-RE
3G3MX2-AB007	3G3AX-RC03510093-RE	3G3MX2-A2007	3G3AX-RC06750061-RE	3G3MX2-A4022	3G3AX-RC10100069-RE
3G3MX2-AB015	3G3AX-RC02510138-RE	3G3MX2-A2015	3G3AX-RC03510093-RE	3G3MX2-A4030	3G3AX-RC08250093-RE
3G3MX2-AB022	3G3AX-RC01600223-RE	3G3MX2-A2022	3G3AX-RC02510138-RE	3G3MX2-A4040	3G3AX-RC06400116-RE
		3G3MX2-A2037	3G3AX-RC01600223-RE	3G3MX2-A4055	3G3AX-RC04410167-RE
		3G3MX2-A2055	3G3AX-RC01110309-RE	3G3MX2-A4075	3G3AX-RC03350219-RE
–		3G3MX2-A2075	3G3AX-RC00840437-RE	3G3MX2-A4011	3G3AX-RC02330307-RE
		3G3MX2-A2011	3G3AX-RC00590614-RE	3G3MX2-A4015	3G3AX-RC01750430-RE
		3G3MX2-A2015	3G3AX-RC00440859-RE	–	

① Chokes (3G3AX-FEJ)

Model	Diameter (mm)	Description
3G3AX-FEJ2102-RE	21	For 2.2 kW (3.0 HP) motors or below
3G3AX-FEJ2515-RE	25	For 15 kW (20 HP) motors or below
3G3AX-FEJ5045-RE	50	For 45 kW (60 HP) motors or below

Output AC Reactor (3G3AX-RAO)

Inverter		AC Reactor
Voltage	Model 3G3MX2-□	Reference
200 VAC	A2001/A2002/A2004 AB001/AB002/AB004	3G3AX-RAO11500026-DE
	A2007/AB007	3G3AX-RAO07600042-DE
	A2015/AB015	3G3AX-RAO04100075-DE
	A2022/AB022	3G3AX-RAO03000105-DE
	A2037	3G3AX-RAO01830160-DE
	A2055	3G3AX-RAO01150220-DE
	A2075	3G3AX-RAO00950320-DE
400 VAC	A4004/A4007/A4015	3G3AX-RAO16300038-DE
	A4022	3G3AX-RAO11800053-DE
	A4030/A4040	3G3AX-RAO07300080-DE
	A4055	3G3AX-RAO04600110-DE
	A4075	3G3AX-RAO03600160-DE

② Accessories

Types	Model	Description	Functions
Digital operator	3G3AX-OP05	LCD remote operator	5 Line LCD remote operator with copy function, cable length max. 3m.
	3G3AX-CAJOP300-EE	Remote operator cable	3 meters cable for connecting remote operator
Accessories	3G3AX-PCUSB-E	PC configuration cable	Mini USB to USB connector cable

③ Communication Option Boards

Types	Model	Description	Functions
Communication options	3G3AX-MX2-PRT	Profibus option card	Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current, or similar items through Profibus communications with the host controller.
	3G3AX-MX2-DRT	DeviceNet option card	
	3G3AX-MX2-ERT	EtherCAT option card	
	3G3AX-MX2-CRT	CompoNet option card	Under development
	3G3AX-MX2-ML2	Mechatrolink II option card	
	3G3AX-MX2-CORT	CanOpen option card	

Ordering Information

④ Braking Unit, Braking Resistor Unit (3G3AX-REM)

Inverter				Braking resistor unit					
Voltage	Max. motor kW	Inverter 3G3MX2-□		Connectable min. resistance Ω	Inverter mounted type (3%ED, 10 sec max)		Braking torque %	Inverter mounted type (10%ED, 10 sec max)		Braking torque %
		3-phase	1-phase		Type 3G3AX-□	Resist Ω		Type 3G3AX-□	Resist Ω	
200 V (1-phase/ 3-phase)	0.12	A2001	AB001	100	REM00K1400-IE	400	200	REM00K1400-IE	400	200
	0.25	A2002	AB002	100	REM00K1400-IE	400	180	REM00K1400-IE	400	180
	0.55	A2004	AB004	100	REM00K1200-IE	200	180	REM00K1200-IE	200	180
	1.1	A2007	AB007	50	REM00K1200-IE	200	100	REM00K2070-IE	70	200
	1.5	A2015	AB015	50	REM00K2070-IE	70	140	REM00K4075-IE	75	130
	2.2	A2022	AB022	35	REM00K2070-IE	70	90	REM00K4035-IE	35	180
	4.0	A2040	-	35	REM00K4075-IE	75	50	REM00K6035-IE	35	100
	5.5	A2055	-	20	REM00K4035-IE	35	75	REM00K9017-IE	17	150
	7.5	A2075	-	17	REM00K4035-IE	35	55	REM01K9017-IE	17	110
	11	A2110	-	17	REM00K6035-IE	35	40	REM02K1017-IE	17	75
	15	A2150	-	10	REM00K9017-IE	17	55	REM03K5010-IE	10	95
400 V (3-phase)	0.55	A4004	-	180	REM00K1400-IE	400	200	REM00K1400-IE	400	200
	1.1	A4007	-	180	REM00K1400-IE	400	200	REM00K1400-IE	400	200
	1.5	A4015	-	180	REM00K1200-IE	200	190	REM00K2200-IE	200	190
	2.2	A4022	-	100	REM00K2200-IE	200	130	REM00K5120-IE	120	200
	3.0	A4030	-	100	REM00K2120-IE	120	160	REM00K5120-IE	120	160
	4.0	A4040	-	100	REM00K2120-IE	120	120	REM00K6100-IE	100	140
	5.5	A4055	-	70	REM00K4075-IE	75	140	REM00K9070-IE	70	150
	7.5	A4075	-	70	REM00K4075-IE	75	100	REM01K9070-IE	70	110
	11	A4110	-	70	REM00K6100-IE	100	50	REM02K1070-IE	70	75
	15	A4150	-	35	REM00K9070-IE	70	55	REM03K5035-IE	35	110

⑤ Computer Software

Software runs on the following OS: Windows 2000 (Service Pack 3a or higher), XP or Vista.

Item	Description	Functions	Model
CX-Drive	Inverter/AC Drive/Servo Support software	Set, transfer and compare parameters; perform test runs and adjustment; perform monitoring and data tracing for Omron inverters and servos included in CX-One software.	WS02-DRVC1
CX-One	All-in-one Automation software	Program, configure and simulate operations for PLCs, HMIs, networks, motion control systems, temperature and process controllers.	CXONE-AL01C-V3

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

Specifications are subject to change without notice.