

TYPE 3G3LX-A

Born to drive lifts

INSTRUCTION MANUAL

Thank you for purchasing 3G3LX inverter.

To ensure safe operation, please be sure to read the safety precautions provided in this document along with all of the user manuals for the inverter. Please be sure you are using the most recent versions of the user manuals. Keep this instruction manual and all of the manuals in a safe location and be sure that they are readily available to the final user of the products.

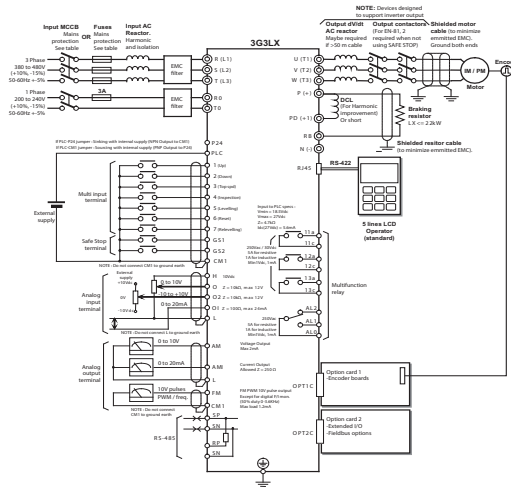
Name	Cat. No.
LX Series User's Manual	I120E-EN-01

OMRON Corporation

NT210XA-EN



Standard Connection Diagram



* Factory default settings for relay output are NC contact for AL1 and NO contact for AL2.

Terminal symbols, Screw size and Tightening Torque

Type 3G3LX-	Main Circuit		Option		Control Circuit	Relay
	R(L), T(L3), V(T2), W(T3)	S(L2), U(T1), V(T2)	Ro, To	Ground (symbol)	PD(+1) (P+), N(-), RE	AM, AMI, H, O, O2, O1L, FM, 7, 6, 5, 4, 3, 2, 1, CM1, PLC, P24, GS1, G22
A4037	M4	M4	M4	M4	M4	Single track 0.2 - 1.5 mm ² (AWG 24 - 16)
A4040, A4055, A4075	M5	M5	M5	M5	M5	Strand wire 0.2 - 1.0 mm ² (AWG 24 - 17)
A4110	M6	M6	M6	M6	M6	Stick terminal 0.25 - 0.75 mm ² (AWG 24 - 18)
A4150, A4185	M6	M6	M6	M6	M6	Stick terminal 0.25 - 0.75 mm ² (AWG 24 - 18)

Screw Size	M4	M5	M6
Torque	1.2 N·m (max. 1.4)	2.4 N·m (max. 4.0)	4.5 N·m (max. 4.9)

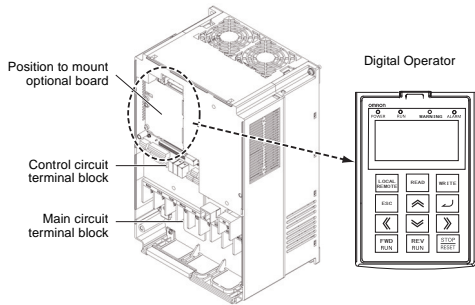
Keys

Symbol	Name	Description
LOCAL/REMOTE	Remote key	It changes from local to remote mode. Press the key during 2 seconds to switch between modes.
▲	Increment key	Changes the set values, parameters and commands.
▼	Decrement key	
⏪	Left cursor	
⏩	Right cursor	
FWD RUN	Forward RUN	Starts the operation in forward direction.
REV RUN	Reverse RUN	Starts the operation in reverse direction.
STOP/RESET	STOP/RESET key	Stops the operation. Functions as the Reset key if an error occurs.
↵	Enter key	Enters and stores the data.
ESC	Escape key	Returns to the above layer.

Parameter List

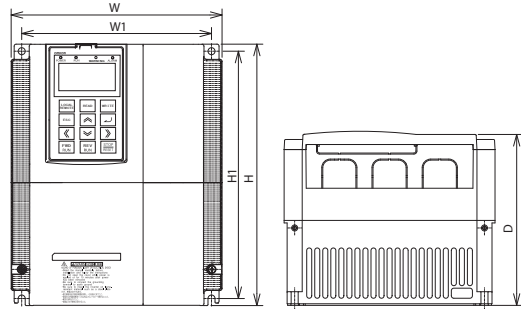
Parameter No.	Function name	Monitor or data range
d001	Output speed monitor	0.00 to 400.00
d002	Output current monitor	0.0 to 9999.9
d003	Rotation direction monitor	FWD (forward), STOP (stopped), REV (reverse)
d008	Actual speed monitor	-400.00 to 400.00 (Only when encoder is used)
d009	Acceleration monitor	-9.8 to 9.8 m/s ²
d010	Torque bias monitor	-300 to +300
d012	Torque monitor	-300 to +300
d013	Output voltage monitor	0.0 to 600.0
d014	Power monitor	0.0 to 999.9
d015	Cumulative power monitor	0.0 to 99999.0
d016	Cumulative operation RUN time monitor	0.0 to 99999
d017	Cumulative power-on time monitor	0.0 to 99999
d018	Heat sink temperature monitor	2 to 200
d019	Motor temperature monitor	2 to 200
d029	Position reference monitor	-2147483647 to 2147483647
d030	Position feedback monitor	-2147483647 to 2147483647
d080	Error counter	0 to 65535
d081 to d086	Error monitor 1 - Error monitor 6	Error factor → Output frequency → Current → DC bus voltage → Running time → Power-on time → Real time clock
d090	Operator programming error monitor	Warning code
d102	DC voltage monitor	0.0 to 999.9
d103	BRD load factor monitor	0.0 to 100.0
d104	Electronic thermal overload monitor (MTR)	0.0 to 100.0
F001	Speed reference setting	0.00 to max. speed
F002	Acceleration time setting	0.01 to 3600.00
F003	Deceleration time setting	0.01 to 3600.00
F010	STOP key enable	00: Enable 01: Disable 02: Reset (Disabling only the function to stop)
F011	Function code display restriction	00: ALL (Full display) 01: FUNCTION (Function-specific display) 02: USER (User setting) 03: COMPARE (Data comparison display) 05: MONITOR (Monitor only display)
F014	Copy function enable	00: Disable 01: Enable
F015	Traction sheave diameter	100 to 2000 (mm)
F016	Roping ratio	00: (1:1) / 01: (1:2) / 02: (1:3) / 03: (1:4)
F017	Gear ratio	0.10 to 40.00
F020	Speed unit selection	00: Hz / 01: min-1 / 02: m/s / 03: % / 04: ft/m
F021	Acceleration/Deceleration unit selection	00: s (sec) 01: m/s ²
F030	Initialization mode selection	00: no (disable) 01: Err data (error history) 02: Parameter 03: ErrPm (Error history and Parameter) 04: ErrPmErzSQ (Error history, Parameter and Drive Programming)
F032	Initialization data selection	00: All 01: Exc. TERM (The parameter related to the terminals is excluded) 02: Exc. COM (The parameter related to the communication is excluded) 03: Exc. TERM/COM (The parameter related to the terminal and communication is excluded)
F034	Initialize trigger selection	00: No action (disable) / 01: Initialize (enable)
A001	Speed reference selection	01: 0 (Using O-L input) 02: 01 (Using O-L input) 03: 02 (Using O2-L input) 04: Multi (Using Multi speed) 05: RS485 (Using RS485 Modbus-RTU) 06: OP1 (Using option card 1) 07: OP2 (Using option card 2) 08: PRG (Using Drive programming)
A002	RUN command source selection	01: TRM (Using control circuit terminal) 02: REM (Using keypad) 03: RS485 (Using RS485) 04: OP1 (Using option card 1) 05: OP2 (Using option card 2)
A003	Base speed setting	1.00 to max. speed [A004]
A004	Maximum speed setting	1.00 to 400.00
A006	Start speed adjustment	0.10 to 9.99 Hz (Only for V/F or OLV)
A007	Carrier frequency setting	2.0 to 15.0 KHz
A019	Multi speed selection	00: Lift (Lift speed) / 01: Multi (Multi stage speed)
A020	Special speed setting	0.00 to max. speed
A021 to A027	Multi speed 1~7 setting	0.00 to max. speed
A028	Fast speed setting	0.00 to max. speed
A029	Crawl speed setting	0.00 to max. speed
A034	Inspection speed setting	0.00 to max. speed
A035	Inspection speed 2 setting	0.00 to max. speed

Names of Parts



Installation and Wiring

Dimensions



3G3LX-	W	W1	H	H1	D
A4037-E	150	130	255	241	140
A4040-E to A4110-E	210	189	260	246	170
A4150-E to A4185-E	250	229	390	376	190

[mm]

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, code, or regulations that apply to the combination of products in the customer's application or use of the products.

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

NEVER USE THE PRODUCTS 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 PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

See also product catalogues for Warranty and Limitations of Liability.

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

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Safety Precautions

■ Indications and Meanings of Safety Information

In this user's manual, the following precautions and signal words are used to provide information to ensure the safe use of the 3G3LX Inverter. The information provided here is vital to safety. Strictly observe the precautions provided.

■ Meanings of Signal Words



DANGER

Indicates an imminently hazardous situation which, if not avoided, is likely to result in serious injury or may result in death. Additionally there may be severe property damage.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

■ Alert Symbols in this Document



DANGER



Turn off the power supply and implement wiring correctly. Not doing so may result in a serious injury due to an electric shock.



Wiring work must be carried out only by qualified personnel. Not doing so may result in a serious injury due to an electric shock.



Do not change wiring and slide switches(SW1), put on or take off Operator and optional devices, replace cooling fans while the input power is being supplied. Doing so may result in a serious injury due to an electric shock.



Be sure to ground the unit. Not doing so may result in a serious injury due to an electric shock or fire.



(200 V class: type-D grounding, 400 V class: type-C grounding)



Do not remove the terminal cover during the power supply and 10 minutes after the power shut off.

Doing so may result in a serious injury due to an electric shock.



Do not operate the Operator or switches with wet hands. Doing so may result in a serious injury due to an electric shock.



Inspection of the Inverter must be conducted after the power supply has been turned off. Not doing so may result in a serious injury due to an electric shock.

The main power supply is not necessarily shut off even if the emergency shut off function is activated.



CAUTION



Do not connect resistors to the terminals (PD(+1), P(+), N(-)) directly. Doing so might result in a small-scale fire, heat generation or damage to the unit.



Install a stop motion device to ensure safety. Not doing so might result in a minor injury. (A holding brake is not a stop motion device designed to ensure safety.)



Be sure to use a specified type of braking resistor/regenerative braking unit. In case of a braking resistor, install a thermal relay that monitors the temperature of the resistor. Not doing so might result in a moderate burn due to the heat generated in the braking resistor/regenerative braking unit. Configure a sequence that enables the Inverter power to turn off when unusual over heating is detected in the braking resistor/regenerative braking unit.



The Inverter has high voltage parts inside which, if short-circuited, might cause damage to itself or other property. Place covers on the openings or take other precautions to make sure that no metal objects such as cutting bits or lead wire scraps go inside when installing and wiring.



Do not touch the Inverter fins, braking resistors and the motor, which become too hot during the power supply and for some time after the power shut off. Doing so may result in a burn.



Take safety precautions such as setting up a molded-case circuit breaker (MCCB) that matches the Inverter capacity on the power supply side. Not doing so might result in damage to property due to the short circuit of the load.



Do not dismantle, repair or modify this product. Doing so may result in an injury.

Precautions for Safe Use

■ Installation and Storage

Do not store or use the product in the following places.

- Locations subject to direct sunlight.
- Locations subject to ambient temperature exceeding the specifications.
- Locations subject to relative humidity exceeding the specifications.
- Locations subject to condensation due to severe temperature fluctuations.
- Locations subject to corrosive or flammable gases.
- Locations subject to exposure to combustibles.
- Locations subject to dust (especially iron dust) or salts.
- Locations subject to exposure to water, oil, or chemicals.
- Locations subject to shock or vibration.

■ Transporting, Installation, and Wiring

- Do not drop or apply strong impact on the product. Doing so may result in damaged parts or malfunction.
- Do not hold by the front cover and terminal cover, but hold by the fins during transportation.
- Do not connect an AC power supply voltage to the control input/output terminals. Doing so may result in damage to the product.
- Be sure to tighten the screws on the terminal block securely. Wiring work must be done after installing the unit body.
- Do not connect any load other than a three-phase inductive motor to the U, V, and W output terminals.
- Take sufficient shielding measures when using the product in the following locations. Not doing so may result in damage to the product.
 - Locations subject to static electricity or other forms of noise.
 - Locations subject to strong magnetic fields.
 - Locations close to power lines.

■ Operation and Adjustment

- Be sure to confirm the permissible range of motors and machines before operation because the inverter speed can be changed easily from low to high.
- Provide a separate holding brake if necessary.

■ Maintenance and Inspection

- Be sure to confirm safety before conducting maintenance, inspection or parts replacement.

Precautions for Correct Use

■ Installation

- Mount the product vertically on a wall the product's longer sides upright. The material of the wall has to be nonflammable such as a metal plate.

■ Main Circuit Power Supply

- Confirm that the rated input voltage of the Inverter is the same as AC power supply voltage.

■ Error Retry Function

- Do not come close to the machine when using the error retry function because the machine may abruptly start when stopped by an alarm.
- Be sure to confirm the RUN signal is turned off before resetting the alarm because the machine may abruptly start.

■ Non-Stop Function at Momentary Power Interruption

- Do not come close to the machine when selecting reset in the non-stop function at momentary power interruption selection because the machine may abruptly start after the power is turned on.

■ Operation Stop Command

- Provide a separate emergency stop switch because the STOP Key on the Operator is valid only when function settings are performed.
- When checking a signal during the power supply and the voltage is erroneously applied to the control input terminals, the motor may start abruptly. Be sure to confirm safety before checking a signal.

■ Product Disposal

- Comply with the local ordinance and regulations when disposing of the product.

UL Cautions

The warnings and instructions in this section summarizes the procedures necessary to ensure an inverter installation complies with Underwriters Laboratories guidelines.

These devices are open type and/or Enclosed Type 1 (when employing accessory Type 1 Chassis Kit) AC Inverters with three phase input and three phase output. They are intended to be used in an enclosure. They are used to provide both an adjustable voltage and adjustable frequency to the AC motor. The inverter automatically maintains the required voltage-Hz ration allowing the capability through the motor speed range.

- Use 60/75°C Cu wire only or equivalent. (For models: 3G3LX-A4075, -A4110)
- Use 75°C Cu wire only or equivalent. (For models: 3G3LX series except for models 3G3LX-A4075, -A4110)
- Suitable for use on a circuit capable of delivering not more than 100k rms symmetrical amperes, 240 V maximum. (For models:200 V class)
- Suitable for use on a circuit capable of delivering not more than 100k rms symmetrical amperes, 480 V maximum. (For models:400 V class)
- Install device in pollution degree 2 environment or equivalent.
- Maximum Surrounding Air Temperature 50°C.
- Caution -Risk of Electric Shock- Capacitor discharge time is at least 10 minutes.
- Solid state motor overload protection is provided in each model.
- Integral solid state short circuit protection does not provide branch circuit protection. Branch circuit protection must be provided in accordance with the National Electric Code and any additional local codes.

■ Terminal Tightening Torque and Wire Size

The wire size range and tightening torque for field wiring terminals are presented in the tables below.

Input Voltage	Motor Output (kW)	Inverter Model	Power Terminal Wiring Size Range (AWG)	Torque (N-m)
400 V Class	3.7	3G3LX-A4037	14 (Stranded only)	1.8
	4	3G3LX-A4040	12	4.0
	5.5	3G3LX-A4055		
	7.5	3G3LX-A4075	10	
	11	3G3LX-A4110	8	
	15	3G3LX-A4150	6	4.9
	18.5	3G3LX-A4185		

Terminal Connector	Wiring Size Range (AWG)
Logic and Analog connectors	Single track 24 -16 Strand wire 24 -17
Relay connector	Stick terminal 24 -18

■ Circuit breaker and Fuse Size

Distribution fuse/circuit breaker size marking is included in the manual to indicate that the unit shall be connected with a Listed inverse time circuit breaker, rated 600 V with the current ratings or UL Listed fuses as shown in the table below.

Input Voltage	Inverter Model	Fuse	Circuit Breaker	Ratings (A)
400 V Class	3G3LX-A4037	Type J	Inverse time	20
	3G3LX-A4040			40
	3G3LX-A4055			40
	3G3LX-A4075			40
	3G3LX-A4110			40
	3G3LX-A4150			75
	3G3LX-A4185			75

■ Motor Overload Protection

3G3LX Inverters provide solid state motor overload protection, which depends on the proper setting of the following parameters:

- b012: electronic overload protection
- b212: electronic overload protection, 2nd motor

Set the rated current [Amperes] of the motor(s) with the above parameters. The setting range is 0.2 rated current to 1.0 rated current.

When two or more motors are connected to the Inverter, they cannot be protected by the electronic overload protection. Install an external thermal relay on each motor.

Conformance to EC Directives

- It is necessary to use optional EMC filter to comply with EMC directive (EN61800-3)
- For earthing, selection of cable and any other conditions for EMC compliance, please refer to the manual for installation.

Safety

For use of the drive as safety device please refer to the user's manual.

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