

Elevator Inverter FRENIC-Lift

FRENIC L I T



MEH426s



FRENIC-Lift Elevator Inverter

The **FRENIC-Lift** Series of exclusive inverters for operation of elevators are specially designed to have a number of improved features over previous elevator inverters, such as vastly lower torque ripple. We have incorporated the functions that customers find most necessary in elevator controls to provide an inverter that delivers performance that fits your elevator system.



Great Performance through Dedicated Designs Welcome to The New Generation of ELEVATOR Inverter

Optimum Exclusive Design for Passenger Elevators

- A braking circuit is built in the inverters of all the capacities.
- Built-in PG feedback circuit is standard equipment.
- An optional keypad is available.

Higher Performance

- Overload capacity: 200% for 10s
- Current response: 5 times greater than previous models (compared with the G11UD series)
- Reduction of torque ripple realizes low vibration.
 Reduced roll-back during starting up.

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Motor capacit (kW)	4.0	5.5	7.5	11	15	18.5	22	30	37	45
Three-phase 400V	•	•	•	•	•	•	•	•	•	•
Three-phase 200V	N.A.	•	•	•	•	•	•		N.A.	

High performance vector control

Current response (ACR): 500Hz

■ Speed control accuracy: ±0.01%

High overload capacity

200% of rated current for 10s

(Overload begins from 80% continuous operation with a carrier frequency of 10kHz,)

IM/PMSM common drive

 A single inverter can control an induction motor (open/closed loop control) and a synchronous motor (the optional PG interface card is required).

Model variations

 FRENIC-Lift inverters are available in a series with capacities ranging from 4.0 to 45kW for three-phase 400V model, 5.5 to 22kW for three-phase 200V model.

Applicable to the feedbacks from various pulse generators

- Applicable to the inputs by open collector/complementary output as a standard specification (Encoder power supply is switchable between +12V and +15V.)
- Applicable to the inputs from the 5V line driver as an option
- Applicable to serial encoders (HEIDENHAIN EnDat 2.1) and parallel encoders (4-bit gray code, UVW 3-bit code) as options

Maintenance functions/ Long life design

- DC bus capacitor life: 7 years
- Electrolytic capacitor life on the printed
 circuit boards: 7 years
- Cooling fan life: 5 years
- Life warning signal
- Recording and display of cumulative operating time
- Recording and display of cumulative operations

Globalization

- EC Directives (CE Marking) (EN61800-3, EN50178)
- Safety standards (EN954-1)
- Sink/source switchable
- RS-485 communications (Modbus RTU) is adopted as standard equipment.
- CAN Bus is adopted as standard equipment.

Peripheral support tools (Option)

- Inverter support loader software is provided.
- A multi-function keypad (with backlit LCD) makes it possible to copy or edit the function code data.

Specifications

● Standard specifications for three-phase 200V series

		lt	tem				Specifi	cations						
Мо	del (F	RN□□□LM1	S-2□ ■) ('	9)	5.5	7.5	11	15	18.5	22				
App	plicable	e motor rating [[kW] (*1)		5.5	7.5	11	15	18.5	22				
	Rate	d capacity [kV/	A] (*2)		10.2	14	18	24	29	34				
ting	Volta	ıge [V] (*3)			Three-phase	200 to 240V, 50	/60Hz							
Output rating	Rate	d current [A]	(*4)		27.0	37.0	49.0	63.0	74.0	90.0				
Outp	Over	load current ra	ting [A] (10	sec)	54.0	74.0	98.0	126.0	148.0	180.0 (5s)				
	Rate	d frequency [H	z]		50, 60Hz									
		Main power: p	hases, volt	age, frequency	Three-phase	200 to 240V, 50	/60Hz							
	tion	Auxiliary control po	ower input: Pha	ses, voltage, frequency	Single-phase	, 200 to 240V, 50)/60Hz							
<u> </u>	operation	Permissible volta	ge and freque	ncy fluctuation (*8)	Voltage: +10 to -15% (Voltage imbalance within 2% *5), frequency: +5 to -5%									
Input power supply	nal o	Rated input current [A]		With DCR	21.1	28.8	42.2	57.6	71.0	84.4				
wer	Normal	(*6)		Without DCR	31.5	42.7	60.7	80.1	97.0	112				
l bo	_	Required power capacity [kVA] (*7)			7.4	10	15	20	25	30				
lnpu	y	Main power			24VDC or higher									
	Battery operation	Auxiliary control	Phases, vo	Itage, frequency	Single-phase	, 200 to 240V, 50)/60Hz							
	ag o	power input	Permissible Volta	ge and Frequency Fluctuations	Voltage: +10 to -15%, Frequency: +5 to -5%									
l g	Brak	ing time [s]					3	0						
Braking	Duty	cycle (%ED) [%]				5	0						
B	Minir	num connectab	le resistand	ce value [Ω]	15	10	7.5	6	4	3.5				
DC	REAC	CTOR (DCR)			Option									
Арі	plicable	e Safety Stand	ard		EN50178: 1997, EN954-1									
Pro	Protective enclosure (IEC60529)			IP20										
Co	oling s	ystem			Fan cooling	Fan cooling								
We	eight [k	gl			5.6	5.7	7.5	11.1	11.2	11.7				



^(*1) Fuji Electric's 4-pole standard motor is used as an example of a applicable motor rating.

(*2) The rated capacity shows the case where the output voltage is 220V.

(*3) Voltages exceeding the power supply voltage cannot be output.

(*4) The rated current shows the case where the carrier frequency is 10kHz, ambient temperature is 45°C or under, and the root mean squared current in cycle operation is 80% of the inverter's rated current.

(*5) Voltage imbalance [*9] = (Max. voltage [VI) – Min. voltage [VI) / 3-phase average voltage [V] X 67 (See IEC61800-3).

(*6) Calculations were made based on a power supply capacity of 500 kVX (if the inverter capacity exceeds 50 kVX, the power supply capacity is 10 times the inverter capacity) and a connected power supply %X = 5%.

(*7) The inverter is equipped with a DC reactor (DCR).

(*8) These permissible fluctuations are for the main power and the auxiliary control power input.

(*9) A box (II) in the above table replaces A for the inverter without a CAN port

Standard specifications for three-phase 400V series

	I tem				Specifications											
V	/lodel	(FRN	M1S-4□ ■	1) (*9)	4.0	5.5	7.5	11	15	18.5	22	30	37	45		
Δ	Applicable motor rating [kW] (*1))	3.7	5.5	7.5	11	15	18.5	22	30	37	45		
	Rat	ed capacity [k\	/A] (*2)		6.8	10.2	14	18	24	29	34	45	57	69		
ating	Volt	age [V] (*3)			Three-pha	se, 380 to 4	180V, 50/60	Hz				Three-p	ohase, 380 t 50/60Hz	to 460V,		
Output rating	Rat	ed current [A]	(*4)		9.0	13.5	18.5	24.5	32.0	39.0	45.0	60	75	91		
Out	Ove	rload current r	ating [A] (10 sec)	18.0 (3s)	27.0	37.0	49.0	64.0	78.0	90.0	108 (5s)	135 (5s)	163 (5s)		
	Rat	ed frequency [I	Hz]		50, 60Hz											
		Main power: p	hases, vol	tage, frequency	Three-pha	se, 380 to 4	180V, 50/60	Hz								
	ation	Auxiliary control pov	ver input: Phas	es, vo l tage, frequency	Single-pha	se, 200 to	480V, 50/60	Hz					Single-p to 460V, s	hase, 380 50/60Hz* ¹⁰		
<u> </u>	operation	Permissible voltaç	ge and freque	ency fluctuation (*8)	Voltage: +	Voltage: +10 to -15% (Voltage imbalance within 2% *5), frequency: +5 to -5%										
siddns	Normal	Rated input current [A]		With DCR	7.5	10.6	14.4	21.1	28.8	35.5	42.2	57.0	68.5	83.2		
Input power	Nor	(*6)		Without DCR	13	17.3	23.2	33.0	43.8	52.3	60.6	77.9	94.3	114		
put p		Required pow	er capacit	y [kVA] (*7)	5.2	7.4	10	15	20	25	30	40	48	58		
=	y	Main power			48VDC or higher Single-phase, 300 to 480V 50/60Hz Single-phase, 38											
	Battery operation	Auxiliary control	Phases, v	oltage, frequency	Single-pha	Single-phase, 200 to 480V, 50/60Hz										
	n g	power input	Permissible Volta	ge and Frequency Fluctuations	Voltage: +10 to -15%, Frequency: +5 to -5%											
Į g	Bra	king time [s]							3	30						
Braking	Dut	y cycle (%ED)	[%]						5	50						
Ľ	Min	mum connecta	ble resista	nce value $[\Omega]$	96	64	48	24	24	16	16	10	10	8		
С	C RE	ACTOR (DCR))		Option											
Α	pplica	able Safety Sta	ndard		EN50178:	1997, EN9	54-1					EN50178	: 1997			
F	Protective enclosure (IEC60529)			IP20	IP20 IP00											
C	Coolin	g system			Fan coolin	g										
V	Veight	[kg]			3.0	5.6	5.7	7.5	11.1	11.2	11.7	24	33	34		

^(*1) Fuji Electric's 4-pole standard motor is used as an example of a applicable motor rating.

(*2) The rated capacity shows the case where the output voltage is 440V.

(*3) Voltages exceeding the power supply voltage cannot be output.

(*4) The rated current shows the case where the carrier frequency is 10kHz, ambient temperature is 45°C or under, and the root mean squared current in cycle operation is 80% of the inverter's rated current.

(*5) Voltage imbalance [*9] = (Max, voltage [V]) / 3-phase average voltage [V] × 67 (See IEC61800-3).

(*6) Calculations were made based on a power supply capacity of 500 kVA (if the inverter capacity exceeds 50 kVA, the power supply capacity is 10 times the inverter capacity) and a connected power supply %X = 5%.

(*7) The inverter is equipped with a DC reactor (DCR).

(*8) These permissible fluctuations are for the main power and the auxiliary control power input.

(*9) A box (()) in the above table replaces A for the inverter without a CAN port

(*10) 37kW or more. It is necessary to change the power supply switching the connector on the power supply printed board according to the power supply voltage. The same AC power as the main suuply power input is needed for the auxiliary control power input. for the control circuit, the fan and the contactor. The inverter will not operate if the power supply is not input to the auxiliary control power input.

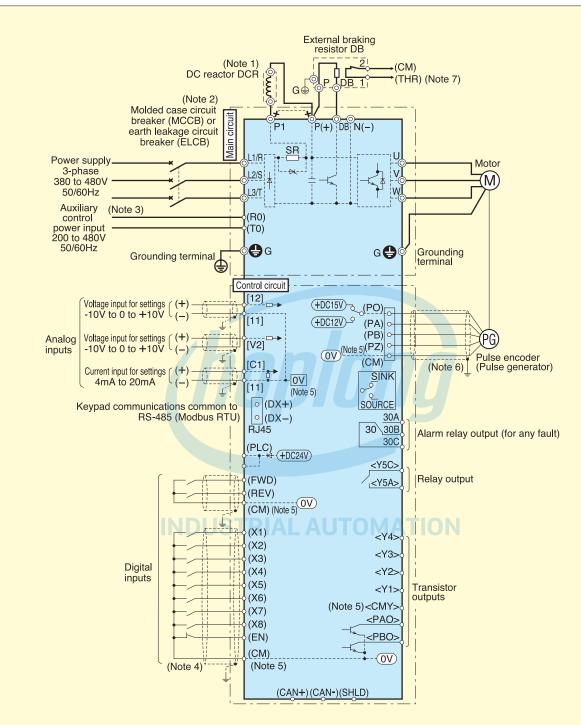
Specifications

Common Specifications

Vector control with PG (Controlled motor type: Induction motor (IM)		Item	Detailed Specifications						
Maximum speed Converted into inverter output frequency, 120Hz (2-pole: 7,200r/min, 4-pole: 3,600r/min, 6-pole: 2,400r/min) PG frequency: Control range Converted into inverter output frequency, 0 to 120 Hz (4-pole: 0 to 3,600 r/min)	Cont	trol method	Vector control with PG (Controlled motor type: synchronous motor with permanent magnet)						
Control range Converted into inverter output frequency, 0 to 120 Hz (4-pole: 0 to 3,600 r/min) Control response 100Hz(Max) Control accuracy Analog setting: ±0.2% or less of the max. speed (25 ± 10°C) Multi-step speed setting/Communications setting: ±0.1% or less of the max. speed (-10 to +45°C) Analog setting: ±0.1% or less of the max. speed (-10 to +45°C) Analog setting: ±0.2% or less of the max. speed (-10 to +45°C) Analog setting: ±0.1% or less of the max. speed (-10 to +45°C) Analog setting: ±0.2% or less of the max. speed (-10 to +45°C) Analog setting: ±0.	Adjustment	Carrier frequency	Note) To protect the inverter, the carrier frequency may be reduced automatically in accordance with ambient temperature						
Control response Control response Control accuracy Analog setting: Multi-step speed setting/Communications setting: ±0.2% or less of the max. speed (±10 to ±45°C) Analog setting: Multi-step speed setting (Converted into inverter output frequency): 0.01 Hz (99.99 Hz or lower), 0.1 Hz (100.0 to 120.0 Hz) Communications: External signals (digital input): FWD/STOP commands, REV/STOP commands, Cast-to-stop command, External alarm, Error reset, etc. Keypad operation: Remote/Local switching permits start and stop operation using the and		Maximum speed							
Analog setting: 1/1,000 of the max. speed Multi-step speed setting (Converted into inverter output frequency): 0.01 Hz (919 a) cor lower), 0.1Hz (100.0 to 120.0Hz) Start/stop Start/stop Start/stop Start/stop Multi-step speed command: Analog Signal: Multi-unction keypad (option): PWD/STOP commands, REV/STOP commands, Coast-to-stop command, External alarm, Error reset, etc. Keypad operation: Remote/Local switching permits start and stop operation using the analog Signal: Multi-unction keypad (option): Pmorted-Local switching permits setting with the and keys (option). Multi-step speed command: Analog Signal: Multi-unction keypad (option): Pmorted-Local switching permits setting with the and keys. Communications: RS-485, CAN Bus Securve acceleration/ deceleration start/end point, s-curve deceleration start/end point and other points are set separately (10 steps). Setting range: 0 to 50% Sequence functions Forced stop, Multi-step speed command (with S-curve acceleration/deceleration), Run command matching timer, Multi-step speed command matching timer, Digital input logical inverse, Digital output logical inverse, Soft start, Stop frequency continuation, Acceleration/deceleration calculation function cancel Control Torque control, Speed adjuster feed forward compensation, Vibration suppression observer, Speed adjuster parameter switching, Digital torque bias, Analog torque bias, Motor parameter tuning, Magnetic position tuning, etc. PMSM function Installation location Ambient temperature Open: -10 to +45°C Ambient humidity 5 to 95% RH (No condensation) Antitude Mindifferential material mater	_	Control range	Converted into inverter output frequency, 0 to 120 Hz (4-pole: 0 to 3,600 r/min)						
Analog setting: 1/1,000 of the max. speed Multi-step speed setting (Converted into inverter output frequency): 0.01 Hz (919 a) cor lower), 0.1Hz (100.0 to 120.0Hz) Start/stop Start/stop Start/stop Start/stop Multi-step speed command: Analog Signal: Multi-unction keypad (option): PWD/STOP commands, REV/STOP commands, Coast-to-stop command, External alarm, Error reset, etc. Keypad operation: Remote/Local switching permits start and stop operation using the analog Signal: Multi-unction keypad (option): Pmorted-Local switching permits setting with the and keys (option). Multi-step speed command: Analog Signal: Multi-unction keypad (option): Pmorted-Local switching permits setting with the and keys. Communications: RS-485, CAN Bus Securve acceleration/ deceleration start/end point, s-curve deceleration start/end point and other points are set separately (10 steps). Setting range: 0 to 50% Sequence functions Forced stop, Multi-step speed command (with S-curve acceleration/deceleration), Run command matching timer, Multi-step speed command matching timer, Digital input logical inverse, Digital output logical inverse, Soft start, Stop frequency continuation, Acceleration/deceleration calculation function cancel Control Torque control, Speed adjuster feed forward compensation, Vibration suppression observer, Speed adjuster parameter switching, Digital torque bias, Analog torque bias, Motor parameter tuning, Magnetic position tuning, etc. PMSM function Installation location Ambient temperature Open: -10 to +45°C Ambient humidity 5 to 95% RH (No condensation) Antitude Mindifferential material mater	ontro	Control response	100Hz(Max)						
Analog setting: 1/1,000 of the max. speed Multi-step speed setting (Converted into inverter output frequency): 0.01 Hz (919 a) cor lower), 0.1Hz (100.0 to 120.0Hz) Start/stop Start/stop Start/stop Start/stop Multi-step speed command: Analog Signal: Multi-unction keypad (option): PWD/STOP commands, REV/STOP commands, Coast-to-stop command, External alarm, Error reset, etc. Keypad operation: Remote/Local switching permits start and stop operation using the analog Signal: Multi-unction keypad (option): Pmorted-Local switching permits setting with the and keys (option). Multi-step speed command: Analog Signal: Multi-unction keypad (option): Pmorted-Local switching permits setting with the and keys. Communications: RS-485, CAN Bus Securve acceleration/ deceleration start/end point, s-curve deceleration start/end point and other points are set separately (10 steps). Setting range: 0 to 50% Sequence functions Forced stop, Multi-step speed command (with S-curve acceleration/deceleration), Run command matching timer, Multi-step speed command matching timer, Digital input logical inverse, Digital output logical inverse, Soft start, Stop frequency continuation, Acceleration/deceleration calculation function cancel Control Torque control, Speed adjuster feed forward compensation, Vibration suppression observer, Speed adjuster parameter switching, Digital torque bias, Analog torque bias, Motor parameter tuning, Magnetic position tuning, etc. PMSM function Installation location Ambient temperature Open: -10 to +45°C Ambient humidity 5 to 95% RH (No condensation) Antitude Mindifferential material mater	oo peed	Control accuracy							
Start/stop Keypad operation: Remote/Local switching permits start and stop operation using the	S	Setting resolution	Multi-step speed setting (Converted into inverter output frequency): 0.01 Hz (99.99 Hz or lower), 0.1Hz (100.0 to 120.0Hz)						
Speed settings Analog Signal: 0 to ± 10V, 4~20mA Multi-function keypad (option): Remote/Local switching permits setting with the and keys. Communications: RS-485, CAN Bus S-curve acceleration/ deceleration setting S-curve acceleration start/end point, s-curve deceleration start/end point and other points are set separately (10 steps). Setting range: 0 to 50% Forced stop, Multi-step speed command (with S-curve acceleration/deceleration), Run command matching timer, Multi-step speed command matching timer, Digital input logical inverse, Digital output logical inverse, Soft start, Stop frequency continuation, Acceleration/deceleration calculation function cancel Control functions Torque control, Speed adjuster feed forward compensation, Vibration suppression observer, Speed adjuster parameter switching, Digital torque bias, Analog torque bias, Motor parameter tuning, Magnetic position tuning, etc. PASSM function Password, unbalanced load compensation, creepless running, battery operation PhSM function Magnet pole position offset tuning Installation location Indoors. Free from corrosive or flammable gases, dust or oil mist. (Pollution degree 2 (IEC60664-1)). No exposure to direct sunlight. Ambient temperature Open: -10 to +45°C Ambient humidity 5 to 95% RH (No condensation) Altitude 1,000 m or lower 55kW or lower 3mm: 2 to less than 9Hz 9.8 m/s²: 9 to less than 20Hz 2 m/s²: 20 to less than 55Hz 1 m/s²: 55 to less than 20Hz 2 m/s²: 55 to less than 20Hz		Start/eton							
Control functions Torque control, Speed adjuster feed forward compensation, Vibration suppression observer, Speed adjuster functions Torque control, Speed adjuster feed forward compensation, Vibration suppression observer, Speed adjuster parameter switching, Digital torque bias, Analog torque bias, Motor parameter tuning, Magnetic position tuning, etc. Exclusive functions Password, unbalanced load compensation, creepless running, battery operation	ions	Speed settings	Analog Signal: 0 to ± 10V, 4~20mA Multi-function keypad (option): Remote/Local switching permits setting with the and keys.						
Control functions Torque control, Speed adjuster feed forward compensation, Vibration suppression observer, Speed adjuster functions Torque control, Speed adjuster feed forward compensation, Vibration suppression observer, Speed adjuster parameter switching, Digital torque bias, Analog torque bias, Motor parameter tuning, Magnetic position tuning, etc. Exclusive functions Password, unbalanced load compensation, creepless running, battery operation	ol Funct								
functions parameter switching, Digital torque bias, Analog torque bias, Motor parameter tuning, Magnetic position tuning, etc. Exclusive functions PMSM function Magnet pole position offset tuning Installation location Ambient temperature Vibration Vibration Fig. 2 m/s²: 20 to less than 20Hz 2 m/s²: 55 to less than 200Hz Storage Ambient Temperature Ambient Temperature Ambient Temperature Ambient Temperature Ambient Temperature Ambient Temperature -25 to +65°C	Contro	Sequence functions	Multi-step speed command matching timer, Digital input logical inverse, Digital output logical inverse, Soft start, Stop						
PMSM function Magnet pole position offset tuning Installation location Indoors. Free from corrosive or flammable gases, dust or oil mist. (Pollution degree 2 (IEC60664-1)). No exposure to direct sunlight. Ambient temperature Open: -10 to +45°C Ambient humidity 5 to 95% RH (No condensation) Altitude 1,000 m or lower 55kW or lower 3mm: 2 to less than 9Hz 9.8 m/s²: 9 to less than 20Hz 2 m/s²: 20 to less than 25Hz 1 m/s²: 55 to less than 200Hz									
Installation location Ambient temperature Vibration Installation location Indoors. Free from corrosive or flammable gases, dust or oil mist. (Pollution degree 2 (IEC60664-1)). No exposure to direct sunlight. Open: -10 to +45°C Ambient humidity 5 to 95% RH (No condensation) Altitude 1,000 m or lower 55kW or lower 9.8 m/s²: 9 to less than 9Hz 9.8 m/s²: 9 to less than 20Hz 2 m/s²: 20 to less than 25Hz 1 m/s²: 55 to less than 200Hz Storage Ambient Temperature -25 to +65°C		Exclusive functions	Password, unbalanced load compensation, creepless running, battery operation						
Ambient temperature		PMSM function	Magnet pole position offset tuning						
Ambient humidity Altitude I,000 m or lower 55kW or lower 55kW or lower 9.8 m/s²: 9 to less than 9Hz 9.8 m/s²: 9 to less than 20Hz 2 m/s²: 20 to less than 55Hz 1 m/s²: 55 to less than 200Hz Storage Ambient Temperature -25 to +65°C			Indoors. Free from corrosive or flammable gases, dust or oil mist. (Pollution degree 2 (IEC60664-1)). No exposure to direct sunlight.						
Altitude 1,000 m or lower 55kW or lower 9.8 m/s²: 9 to less than 9Hz 9.8 m/s²: 9 to less than 20Hz 2 m/s²: 20 to less than 55Hz 1 m/s²: 55 to less than 200Hz Storage Ambient Temperature -25 to +65°C		Ambient temperature							
1 m/s²: 55 to less than 200Hz Storage Ambient Temperature -25 to +65°C	l	Ambient humidity							
1 m/s²: 55 to less than 200Hz Storage Ambient Temperature -25 to +65°C	— Jent	Altitude	1,000 m or lower						
Storage Stor	Environm	Vibration	9.8 m/s²: 9 to less than 20Hz 2 m/s²: 20 to less than 55Hz						
Ambient humidity 5 to 95% RH (No condensation)		Storage Ambient Temperatur	-25 to +65°C						
		Ambient humidit	5 to 95% RH (No condensation)						

^(*1) Torque vector control is available from 4.0kW to 22kW of 400V series. Please do not use it with other products.

Basic Connection Diagram



(Note 1) Before connecting a DC REACTOR (DCR) (option), remove the jumper bar between terminal [PI] and terminal [P+].

(Note 2) To protect the circuit from overcurrent, install the recommended molded-case circuit breaker (MCCB) or earth leakage circuit breaker (ELCB) (equipped with overcurrent protection function) on the inverter's input side (primary circuit). Do not use a circuit breaker that exceeds the recommended capacity

(Note 3) Connect to the auxiliary control power input if you want to activate only the control circuit and establish the inverter stand-by state with the main circuit open. The inverter can be operated by wiring to the main circuit without wiring to this terminal.

When connecting an earth leakage circuit breaker (ELCB) to this terminal, connect the terminals RO and TO to the ELCB output side. If they are connected to the ELCB input side, the ELCB will malfunction. This is because the inverter input terminal is for three-phase but the terminals RO and TO are for single-phase. If connecting the ELCB input side to the terminals RO and TO, be sure to connect an isolation transformer or an auxiliary B-contact of the electromagnetic contactor in the position indicated in the diagram below.

(Note 4) Use shielded or twisted cables as the control signal wires, and ground the shielded cables. To prevent malfunction due to noise, keep control signal wires away from the main circuit wires as

DC/DC Auxiliary B-contact of electromagnetic contactor

far as possible (at least 10 cm) and never run them in the same duct together. If they need to cross with each other, lay them at right angles.

(Note 5) The common terminals [11], (CM) and (CMY) in the control circuit are independent of each other (isolated).

(Note 6) Use shielded cables for wiring. Treat the shielded wire sheath according to the pulse encoder specifications and the connecting conditions with the host controller. The figure shows the shielded cable sheath connected with the motor's grounding cable and the inverter side in open state. Malfunction due to noise, if any, may be improved by connecting the inverter side to (CM). When the wiring between encoder and inverter is long, the signal from the encoder may malfunction and cause irregular noises and torque ripple due to interference between the A-phase and B-phase. In this case, take measures such as shortening the wiring, using cables with small capacitance, etc.

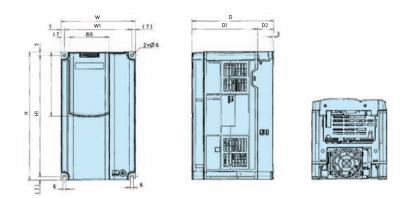
(Note 7) When using the (THR) function, assign the external alarm function (E01 to 08) to any of the terminals (X1) to (X8).

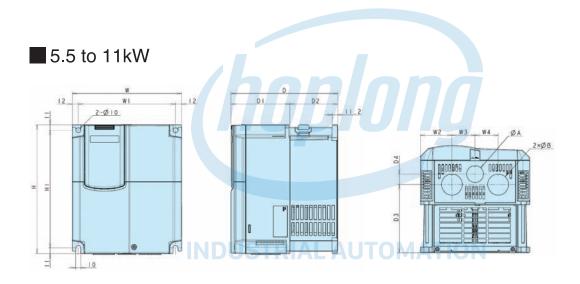


Specifications

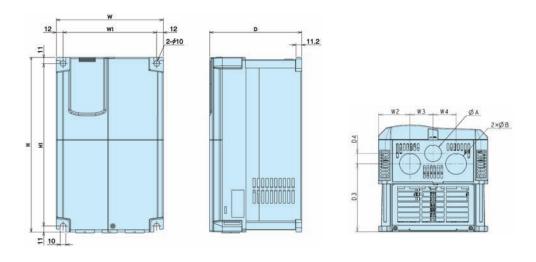
External Dimensions

4.0kW

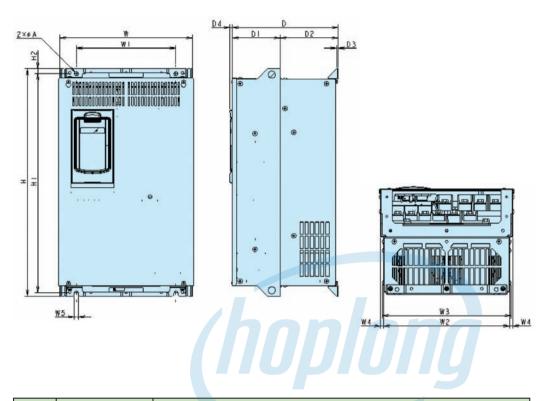




■ 15 to 22kW



30 to 45kW



Power	Type							Dim	ensic	ns (n	nm)						
voltage	туре	W	W1	W2	W3	W4	W5	Н	H1	H2	D	D1	D2	D3	D4	ØΑ	ØВ
	FRN5.5LM1S-2□■																
	FRN7.5LM1S-2□■	220	196	63.5	46.5	46.5		260	238			118.5	96.5	136.7	21		
Three- phase	FRN11LM1S-2□■			ND	U	5	RI	Al	_ <i>P</i>	W	215	M	A		DN	34	42
200V	FRN15LM1S-2□■										210					04	72
	FRN18.5LM1S-2□■	250	226	67	58	58		400	378			85	130	166 . 2	2		
	FRN22LM1S-2□■																
	FRN4.0LM1S-4□■	150	136	_	_	_	_	260	246	-	165	133	32	_	_	_	_
	FRN5.5LM1S-4□■																
	FRN7.5LM1S-4□■	220	196	63.5	46.5	46.5		260	238			118.5	96.5	136.7	21		
	FRN11LM1S-4□■										215					34	42
Three- phase	FRN15LM1S-4□■										210					04	72
400V	FRN18.5LM1S-4□■	250	226	67	58	58		400	378			85	130	166 . 2	2		
	FRN22LM1S-4□■																
	FRN30LM1S-4□■	320	240	304	310.2			550	530		255		140				
	FRN37LM1S-4□■	355	275	339	345.2	8	10			12	270	115	155	4	6	10	-
	FRN45LM1S-4□■				5102			615	595								

Note: A box (\square) in the above table replaces C, E, A or J depending on the shipping destination. A box (\blacksquare) in the above table replaces A for the inverter without a CAN port



Option card List

Option Type	Sp	ecifications	Outline	Motor
OPC-LM1-PP	Incremental signal: Absolute position signal: PG power output: Max. wiring length: Max. input frequency:	A-phase, B-phase (5V line driver) Max. 4 bit 5V ± 5% 20m 100kHz	A card for encoder specifications Parallel interface 3bit or 4 bit absolute position detection (UVW or 4bit gray code)	PMSM
OPC-LM1-PS	Incremental signal: Absolute position signal: PG power output: Applicable PG: Max. wiring length: Max. input frequency:	A-phase, B-phase (sine wave, 1Vpp) Serial interface EnDat 2.1 5V ± 5% 300mA(Max.) HEIDENHAIN ECN1313 20m 50kHz	A card for encoder type ECN1313	PMSM
OPC-LM1-PS1	Incremental signal: Absolute position signal: PG power output: Max. wiring length: Max. input frequency:	A-phase, B-phase (sine wave, 1Vpp) Serial interface EnDat 2.1 5V ± 5% 300mA(Max.) 20m 50kHz	A card for encoder type ECN1313 High resolution for high performance of unbalanced load compensation	PMSM
OPC-LM1-PR	Incremental signal: Absolute position signal: PG power output: Max. wiring length: Max. input frequency:	A-phase, B-phase (sine wave, 1Vpp) SIN/COS 5V ± 5% 300mA(Max.) 20m 50kHz	A card for encoder type ECN1387 High resolution for high performance of unbalanced load compensation	PMSM
OPC-LM1-IL	Incremental signal: Absolute position signal: PG power output: Max. wiring length: Max. input frequency:	F) / . F0/ 000 . A/NA .)	A card for Line driver input	IM
OPC-LM1-ID	Frequency Divider Output Circuit: Ratio: Max. wiring length:	Open Collector (Max.50mA) 1, 2, 4, 8, 16, 32, 64 5m	A card for dividing feedback pulse from encoder	IM

Inverter Support Loader

Functionality: Operation monitoring, test operation, tracing (real-time and historical), function code editing, etc.

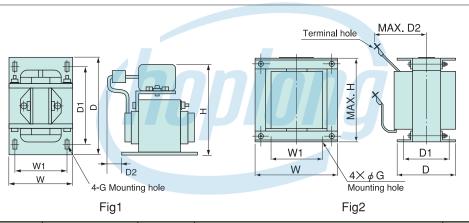
Supported operating systems: Windows 2000, Windows XP

Note: An RS232C/RS485 adapter or USB/RS485 adapter is required to connect the inverter to your computer.

● Keypad (TP-G1-CLS)

Appearance	Specifications
	Communications protocol: Modbus-RTU Connection terminal: RJ-45 connector
	Data display: 7-segment LED, 5 digits, LCD display Keypad operation keys: PRO SEV STOP LED display: For Run (FWD REV) 1 LED LCD display: <indicator display=""> Hz, A, V, %, r/min, m/min, kW, x10, min, sec, PID, FWD, REV, STOP, REM, LOC, COMM, JOG, HAND</indicator>

ODC Reactor



Power	Nominal applied	Inverter Type	Reactor Type	LA	. ,		Mass	Fig					
	motor (kW)			W	W1	D	D1	D2	Ι	Mounting hole	Terminal screw	(kg)	rig
	5 . 5	FRN5.5LM1S-2□■	DCR2-5.5	111	95	100	80	20	130	7 x 11	M5	3.6	1
	7 . 5	FRN7.5LM1S-2□■	DCR2-7.5	111	95	100	80	23	130	7 x 11	M5	3.8	1
Three- phase	11	FRN11LM1S-2□■	DCR2-11	111	95	100	80	24	137	7 x 11	M6	4.3	1
200V	15	FRN15LM1S-2□■	DCR2-15	146	124	120	96	15	171	7 x 11	M6	5.9	1
	18.5	FRN18.5LM1S-2□■	DCR2-18.5	146	124	120	96	25	180	7 x 11	M8	7.4	1
	22	FRN22LM1S-2□■	DCR2-22A	146	124	120	96	25	180	7 x 11	M8	7.5	1
	4.0	FRN4.0LM1S-4□■	DCR4-3.7	86	71	100	80	20	110	6 x 9	M4	2.6	1
	5.5	FRN5.5LM1S-4□■	DCR4-5.5	86	71	100	80	20	110	6 x 9	M4	2.6	1
	7.5	FRN7.5LM1S-4□■	DCR4-7.5	111	95	100	80	24	130	7 x 11	M5	4.2	1
	11	FRN11LM1S-4□■	DCR4-11	111	95	100	80	24	130	7 x 11	M5	4.3	1
Three- phase	15	FRN15LM1S-4□■	DCR4-15	146	124	120	96	15	171	7 x 11	M5	5.9	1
400V	18.5	FRN18.5LM1S-4□■	DCR4-18.5	146	124	120	96	25	171	7 x 11	M6	7.2	1
	22	FRN22LM1S-4□■	DCR4-22A	146	124	120	96	25	171	7 x 11	M6	7.2	1
	30	FRN30LM1S-4□■	DCR4-30B	152	90	157	115	100	130	8	M8	13	2
	37	FRN37LM1S-4□■	DCR4-37B	171	110	150	110	100	150	8	M8	15	2
	45	FRN45LM1S-4□■	DCR4-45B	171	110	165	125	110	150	8	M8	18	2

Note: A box (II) in the above table replaces C, E, A or J depending on the shipping destination. A box (III) in the above table replaces A for the inverter without a CAN port

CÔNG TY CỔ PHẦN CÔNG NGHỆ HỢP LONG



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