



### ASIA

#### Delta Electronics, Inc. Taoyuan1

31-1, Xingbang Road, Guishan Industrial Zone,  
Taoyuan County 33370, Taiwan, R.O.C.  
TEL: 886-3-362-6301 / FAX: 886-3-362-7267

#### Delta Electronics (Jiang Su) Ltd. Wujiang Plant3

1688 Jiangxing East Road,  
Wujiang Economy Development Zone,  
Wujiang City, Jiang Su Province,  
People's Republic of China (Post code: 215200)  
TEL: 86-512-6340-3008 / FAX: 86-512-6340-7290

#### Delta Electronics (Japan), Inc. Tokyo Office

Delta Shibadaimon Building, 2-1-14 Shibadaimon,  
Minato-Ku, Tokyo, 105-0012, Japan  
TEL: 81-3-5733-1111 / FAX: 81-3-5733-1211

#### Delta Electronics (Korea), Inc. Seoul, Korea

234-9, Duck Soo BD 7F, Nonhyun-dong, Kangnam-ku,  
Seoul, Korea (Post code : 135-010)  
TEL: 82-2-515-5305 / FAX: 82-2-515-5302

#### Delta Electronics (Singapore) Pte. Ltd. Singapore

8 Kaki Bukit Road 2, #04-18 Ruby Warehouse Complex,  
Singapore 417841  
TEL: 65-6747-5155 / FAX: 65-6744-9228

#### Delta Energy Systems (India) Pvt. Ltd. Gurgaon, India

Plot No. 27 & 31, Sector-34, EHTP,  
Gurgaon-122001 Haryana, India  
TEL: 91-124-4169040 / FAX: 91-124-4036045

### AMERICA

#### Delta Products Corporation (USA) Raleigh Office

P.O. Box 12173, 5101 Davis Drive,  
Research Triangle Park, NC 27709, U.S.A.  
TEL: 1-919-767-3813 / FAX: 1-919-767-3969

### EUROPE

#### Deltronics (The Netherlands) B.V. Eindhoven Office

De Witbogt 15, 5652 AG Eindhoven, The Netherlands  
TEL: 31-40-2592850 / FAX: 31-40-2592851

\*We reserve the right to change the information in this catalogue without prior notice



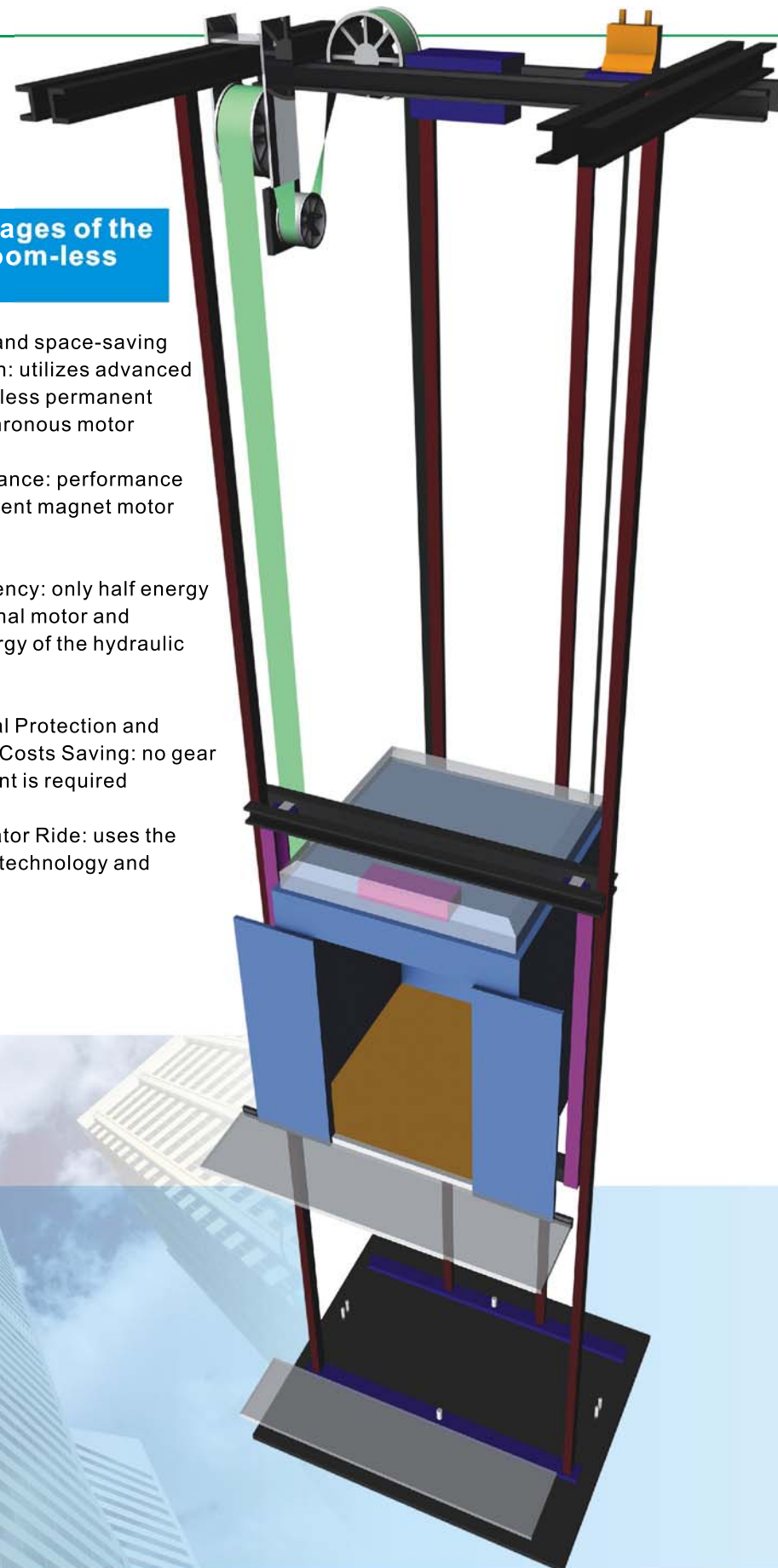
# VFD-VL

## Elevator Drive



## The Advantages of the Machine Room-less Elevator

- Time-saving and space-saving for Installation: utilizes advanced host and gearless permanent magnet synchronous motor
- High Performance: performance of the permanent magnet motor is up to 95%
- Energy-efficiency: only half energy of the traditional motor and one-third energy of the hydraulic elevator
- Environmental Protection and Maintenance Costs Saving: no gear oil replacement is required
- Smooth Elevator Ride: uses the latest control technology and mechanism

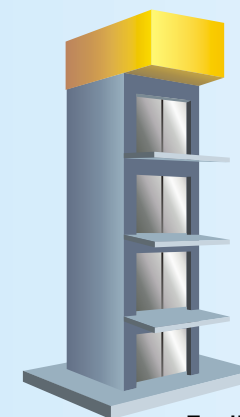


## Features

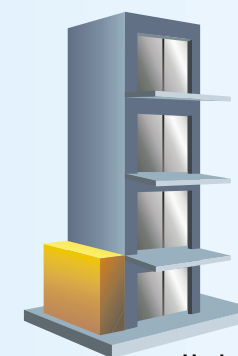
- High performance FOC (Field Oriented Control)
- Applicable for induction motor and permanent magnet synchronous motor
- Utilize the permanent magnet synchronous motor, it can auto-detect the position of magnetic pole when start-up
- With auto-tuning function for motor parameters and the angle between magnetic field and PG origin when driving the permanent magnet synchronous motor
- Built-in brake unit for models under 22kW
- Support for emergency power supply (EPS) to operate at low voltage DC48/96V
- Auto-correct start torque, load compensation and manual adjustment function for smooth ride
- Built-in output contact of elevator mechanical brake
- Built-in control procedure of elevator start/stop operation
- Slim-type modular design for easy maintenance, installation and uninstallation
- RS-485 communication interface(RJ-11) for MODBUS communication protocol
- Connect to PC to monitor elevator operation and parameters settings for smooth ride
- Complete protection function by high precision current detection



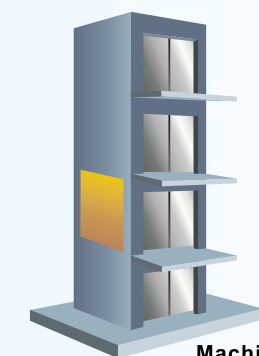
## Modular Design



Traditional Elevator

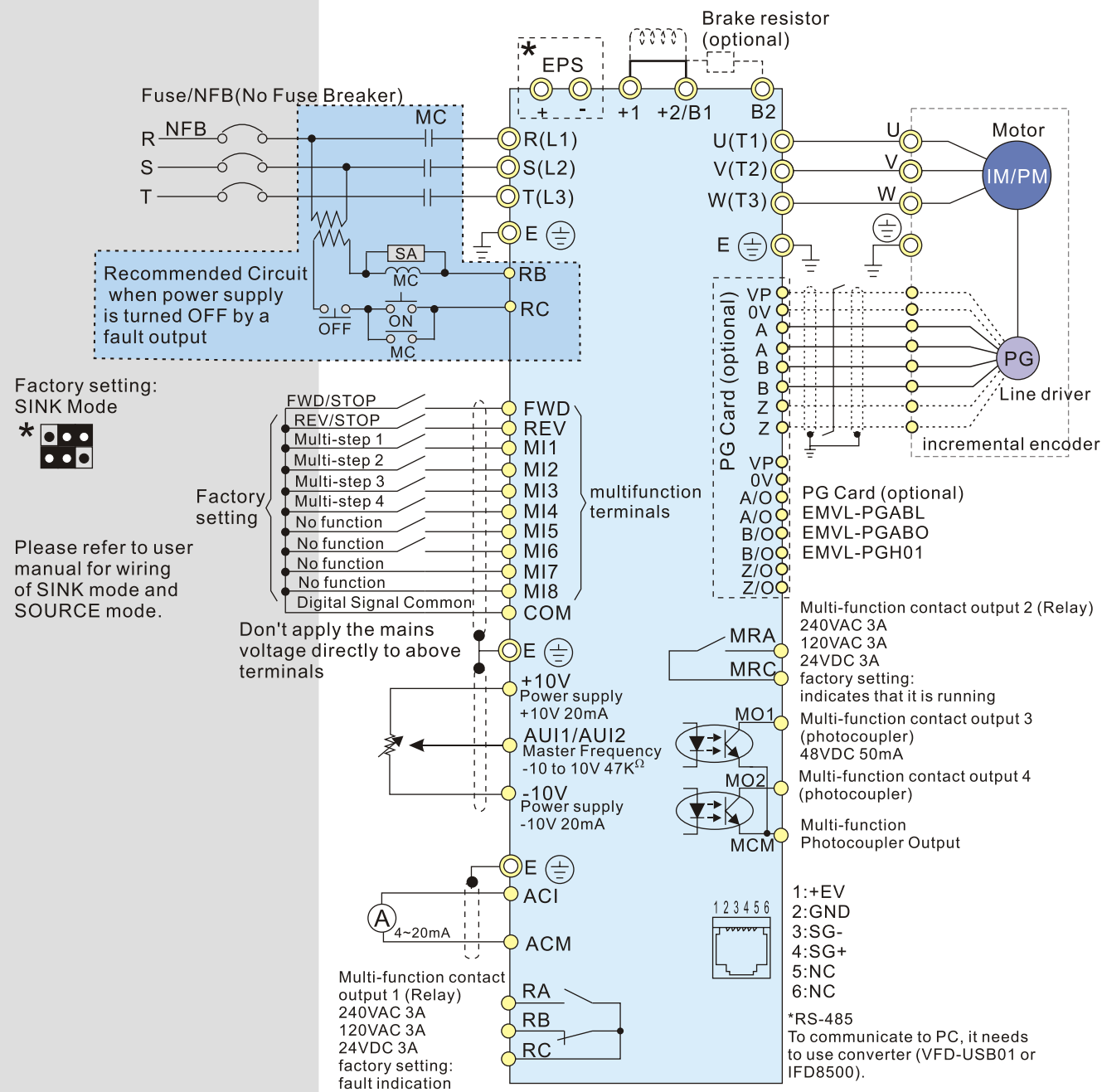


Hydraulic Elevator

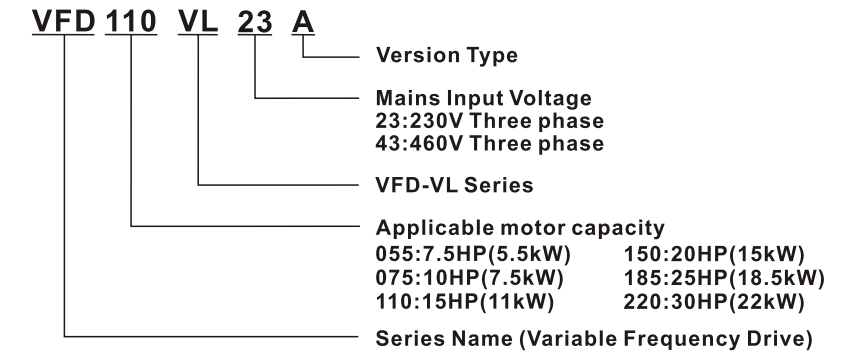


Machine Room-less Elevator

## Wiring Diagram



## Model Explanation



## Specifications

### 230V Series

Model Number VFD-__VL	055	075	110	150	185	220	
Max. Applicable Motor Output (KW)	5.5	7.5	11	15	18.5	22	
Max. Applicable Motor Output(HP)	7.5	10	15	20	25	30	
Output Rating	Rated Output Capacity (kVA)	9.5	12.5	19	25	34	
	Rated Output Current for Constant Torque (A)	21.9	27.1	41.1	53	70.0	79
	Rated Output Current for Variable Torque (A)	25	31	47	60	80	90
	Maximum Output Voltage (V)	3-Phase Proportional to Input Voltage					
Output Frequency (Hz)	0.00~120.00 Hz						
Carrier Frequency (kHz)	12kHz			9kHz			
Input Rating	Rated Input Current (A)	25	33	52	63	68	79
	Rated Voltage/Frequency	3-Phase , 200-240V , 50/60Hz					
	Voltage Tolerance	± 10%(180~264 V)					
	Frequency Tolerance	± 5%(47~63 Hz)					
Cooling Method	Fan Cooling						
Weight (kg)	8	10	10	13	13	13	

### 460V Series

Model Number VFD-__VL	055	075	110	150	185	220	
Max. Applicable Motor Output (KW)	5.5	7.5	11	15	18.5	22	
Max. Applicable Motor Output(HP)	7.5	10	15	20	25	30	
Output Rating	Rated Output Capacity (kVA)	9.9	13.7	18	24	29	34
	Rated Output Current for Constant Torque (A)	12.3	15.8	21	27	34	41
	Rated Output Current for Variable Torque (A)	14	18	24	31	39	47
	Maximum Output Voltage (V)	3-Phase Proportional to Input Voltage					
Output Frequency (Hz)	0.00~120.00 Hz						
Carrier Frequency (kHz)	12kHz			9kHz			
Input Rating	Rated Input Current (A)	12	17	25	27	35	42
	Rated Voltage/Frequency	3-Phase , 380-480V , 50/60Hz					
	Voltage Tolerance	± 10%(342~528 V)					
	Frequency Tolerance	± 5%(47~63 Hz)					
Cooling Method	Fan Cooling						
Weight (kg)	8	10	10	13	13	13	



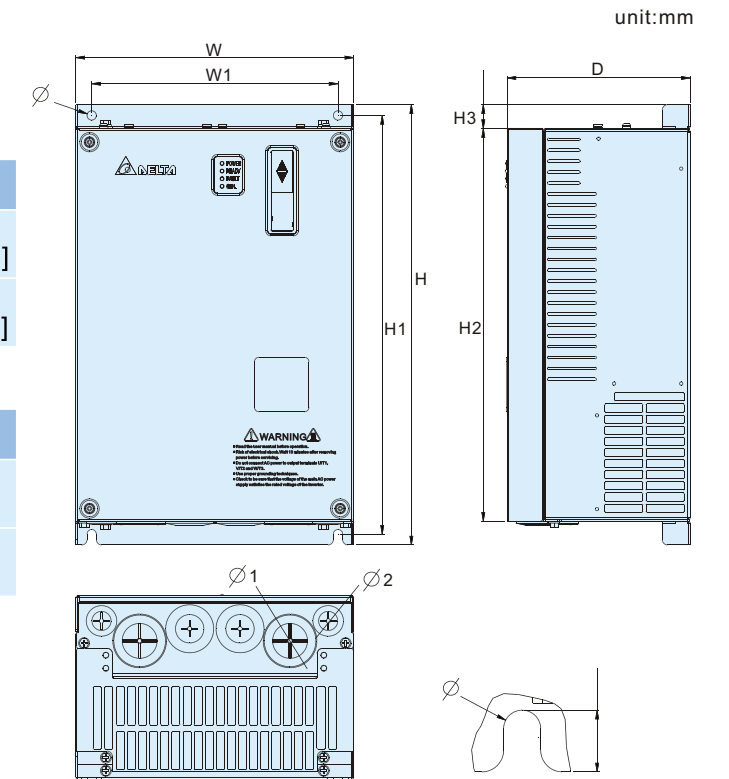
## General Specifications

Control Characteristics	Control System	1: V/F, 2: VF+PG, 3: SVC, 4: FOC+PG, 5: TQR+PG, 6: FOC+PG(PM)
	Start Torque	Starting torque is 150% at 0.5Hz and 0Hz with FOC + PG control mode
	Speed Control Range	1:100 Sensorless vector (up to 1:1000 when using PG card)
	Speed Control Resolution	± 0.5% Sensorless vector (up to ±0.02% when using PG card)
	Speed Response Ability	5Hz (up to 30Hz for vector control)
	Max. Output Frequency	0.00 to 120.00Hz
	Output Frequency Accuracy	Digital command ± 0.005%, analog command ± 0.5%
	Frequency Setting Resolution	Digital command ± 0.01Hz, analog command: 1/4096(12-bit) of the max. output frequency
	Torque Limit	Max. is 200% torque current
	Torque Accuracy	± 5%
	Accel/Decel Time	0.00 to 600.00/0.0 to 6000.0 seconds
	V/f Curve	Adjustable V/f curve using 4 independent points and square curve
	Protection Characteristics	Frequency Setting Signal
Brake Torque		About 20%
Motor Protection		Electronic thermal relay protection
Over-current Protection		The current forces 220% of the over-current protection and 300% of the rated current
Ground Leakage Current Protection		50% rated current
Overload Ability		Constant torque: 150% for 60 seconds, variable torque: 200% for 3 seconds
Over-voltage Protection		Over-voltage level: Vdc > 400/800V; low-voltage level: Vdc < 200/400V
Over-voltage Protection for the Input Power		Varistor (MOV)
Environment	Over-temperature Protection	Built-in temperature sensor
	Protection Level	NEMA 1/IP20
	Operation Temperature	-10°C to 45°C
	Storage Temperature	-20°C to 60°C
	Ambient Humidity	Below 90% RH (non-condensing)
	Vibration	9.80665m/s <sup>2</sup> (1G) less than 20Hz, 5.88m/s <sup>2</sup> (0.6G) at 20 to 50Hz
	Cooling Method	Force cooling
	Installation Location	Altitude 1,000 m or lower, keep from corrosive gasses, liquid and dust
Approvals		

## Dimensions

Frame	W	W1	H	H1	H2
C	235 [9.25]	240 [8.3]	350 [13.78]	337 [13.27]	320 [12.60]
D	255.0 [10.04]	226.0 [8.90]	403.8 [15.90]	384.0 [15.12]	360.0 [14.17]

Frame	H3	D	∅	∅1	∅2
C	-	136 [5.35]	6.5 [0.26]	34 [1.34]	22 [0.87]
D	21.9 [0.86]	168.0 [6.61]	8.5 [0.33]	34 [1.34]	22 [0.87]



## Optional Accessories

### Digital Keypad

KPVL-CC01



### I/O Extension Card

EMVL-IODA01:  
I/O and D/A card



EMVL-SAF01:  
Safety relay board



### Speed Feedback PG Card

EMVL-PGABL:  
for ABZ/UVW line drive



EMVL-PGABO:  
for ABZ open collector



EMVL-PGH01: for HEIDENHAIN  
Absolute incremental Encoder

