



Digitized Automation for a Changing World

Delta Sensorless Vector Control Compact Drive VFD-EL-W Series



www.deltaww.com

www.nicsanat.com

021-87700210



 **DELTA**
Smarter. Greener. Together.

Sensorless Vector Control Compact Drive VFD-EL-W Series

*Simple Speed Control
Horizontal Movement
Fixed Load Applications*



Frame A1



Frame A2



Frame B

| Safety and Reliability



150% / 60secs overload capability



Energy-saving



CE certification

| Easy Maintenance



Natural cooling (Frame A1):
no maintenance required



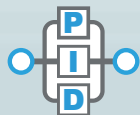
Fan cooling (Frame A2, Frame B):
easy fan installation, reliable design,
fast dust removal



| Complete Functions



Single / multi-pump control:
constant pressure mode & alternative operation



Built-in PID feedback control



Protection: overload, over voltage / over current stall prevention

Applications

Edge Banding Machine

- Communication isolation reduces the interference of HMI
- One drive for two motors in parallel
- Optimized accel. / decel. improve system efficiency
- Small size, lightweight, easy maintenance and installation



Logistics Conveyor

- Built-in RS-485 COM port for high-speed communication
- Fast and stable tension control
- Small and compact design saves installation space



Material Handling Machine

- Multiple speed adjustment modes for different applications
- AVR function to ensure stability and reliability
- Speed tracking function for continuing operation after power resumes from an instantaneous power failure



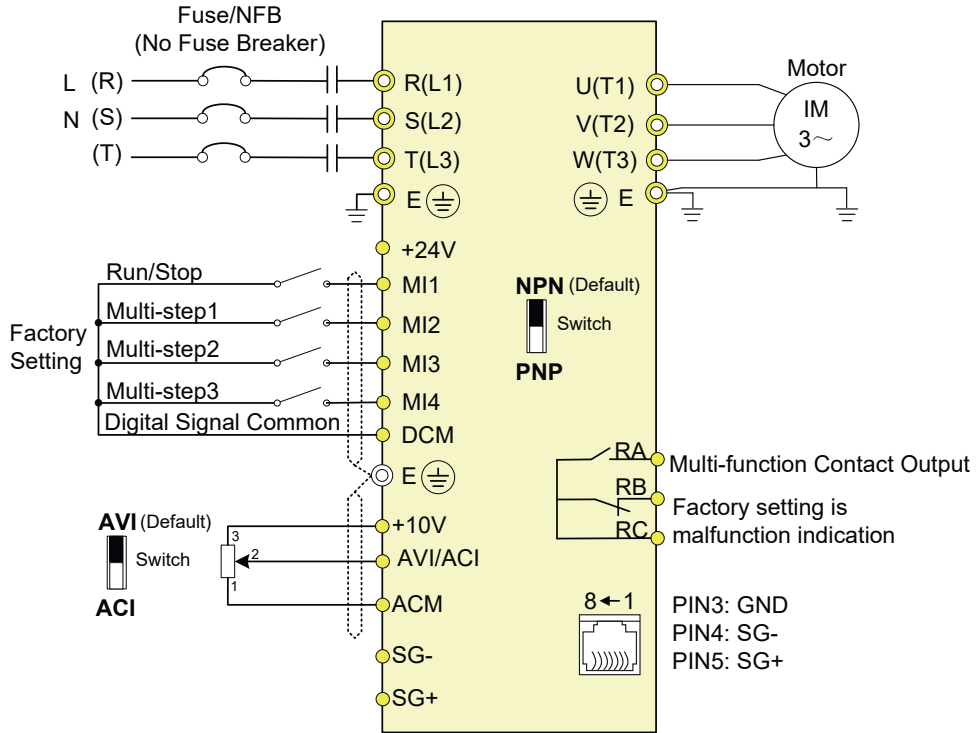
Constant Pressure Pump

- Build-in PID pressure control; no need for external PID device to save system cost
- Built-in automatic inspection and restoration functions in case of water outage; no external PLC needed
- System leakage control function
- Multi-pump control: alternates pump operation in cycle (One drive supports max. 4 pumps)



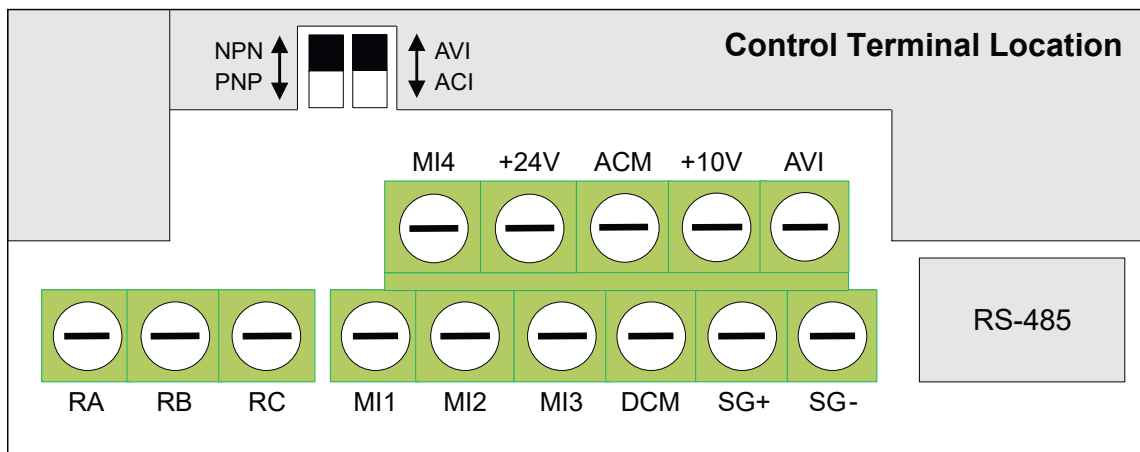
Wiring

230V/460V Models



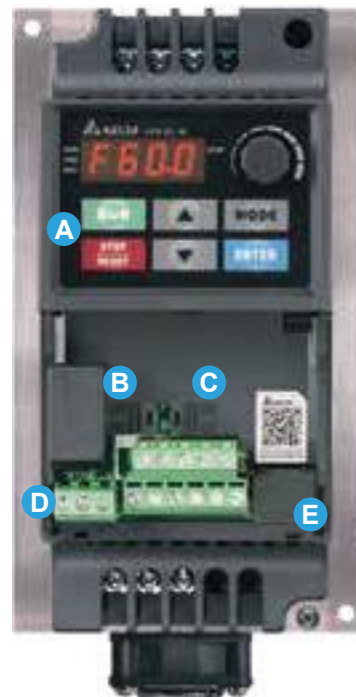
● Main Circuit (power) Terminals
 ● Control Circuit Terminals
 Shielded Leads & Cable
NOTE Terminal SG+, SG- are joined to PIN5, PIN4 of RJ45 Connector

Control Terminals

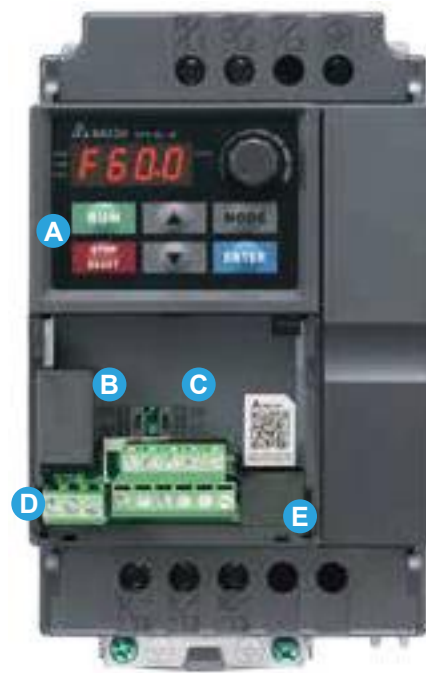


Frames and Appearances

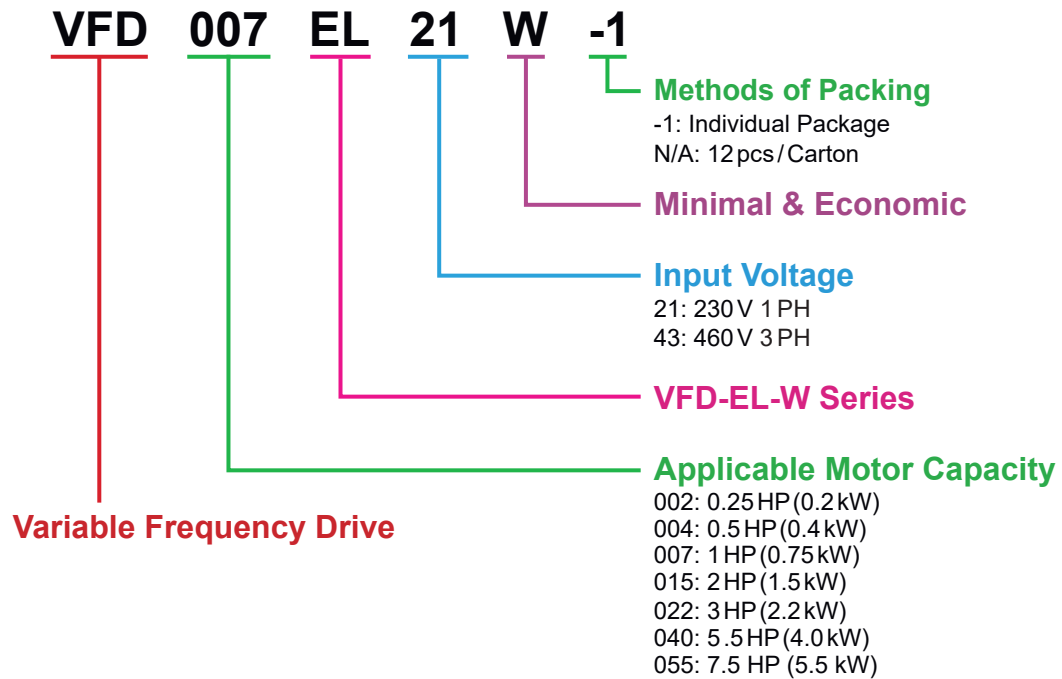
■ Frame A1/A2



■ Frame B



Model Explanation



Specifications

Product Specifications

Voltage		230 V					460 V					
Frame		A1			B		A1		A2	B		
Model	VFD-__EL21W(-1) VFD-__EL43W(-1)	002	004	007	015	022	004	007	015	022	040	055
Max. Applicable Motor Output (kW)		0.2	0.4	0.75	1.5	2.2	0.4	0.75	1.5	2.2	4.0	5.5
Max. Applicable Motor Output (HP)		0.25	0.5	1.0	2.0	3.0	0.5	1.0	2.0	3.0	5.5	7.5
Output Rating	Rated Output Capacity (kVA)	0.6	1.0	1.6	2.9	4.2	1.2	2.0	3.3	4.4	7.4	9.9
	Rated Output Current (A)	1.6	2.5	4.2	7.5	11.0	1.5	2.5	4.2	5.5	9.0	13.0
	Maximum Output Voltage (V)	3-Phase Proportional to Input Voltage										
	Output Frequency (Hz)	0.1 ~ 400										
Carrier Frequency (kHz)		2 ~ 12 (Default 8kHz)										2 ~ 12 (Default 4kHz)
Input Rating	Rated Input Current (A)	4.9	6.5	9.3	15.7	24.0	1.8	3.2	4.3	7.1	10.0	17.0
	Rated Voltage / Frequency	Single Phase, AC 200V ~ 240V, 50 / 60Hz					Three Phase, AC 380V ~ 480V, 50 / 60Hz					
	Voltage Tolerance	±10% (180V ~ 264V)					±10% (342V ~ 528V)					
	Frequency Tolerance	±5% (47Hz ~ 63Hz)										
Weight (kg)		1.0			1.4		1.0			1.4		1.5
Cooling Method		Natural Cooling			Fan Cooling		Natural Cooling			Fan Cooling		
Brake Unit		N/A										
DC Choke		N/A										
EMI Filter		N/A										

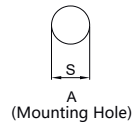
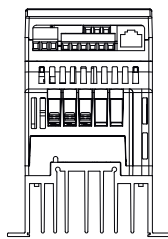
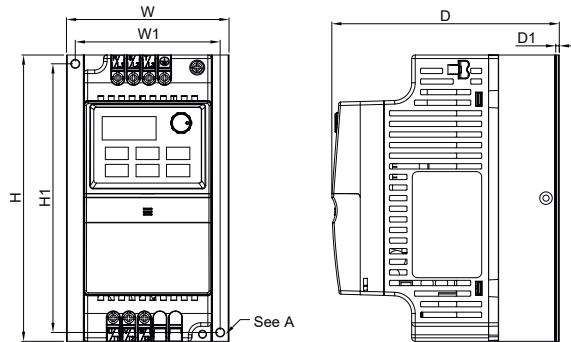
Specifications

General Specifications

Control Characteristics	Control System		SPWM (Sinusoidal Pulse Width Modulation) control (V/F Control, Vector Control)
	Frequency Setting Resolution		0.01 Hz
	Output Frequency Resolution		0.01 Hz
	Torque Characteristics		Including the auto-torque, auto-slip compensation; starting torque can be 150% at 5 Hz
	Overload Endurance		150% of rated current for 1 minute
	Skip Frequency		Three zones, setting range 0.1 ~ 400 Hz
	Accel./Decel. Time		0.1 to 600 secs (2 independent setting for accel./decel. time)
	Stall Prevention Level		Setting 20 to 250% of rated current
	DC Brake		Operating frequency 0.1~400Hz, Output 0 ~ 100% rated current Start time 0~60 secs, stop time 0~60 secs
V/F Pattern		Adjustable V/F pattern	
Operating Characteristics	Frequency Setting	Keypad	Setting by ▲ ▼
		External Signal	Potentiometer: 5kΩ/0.5W, 0 to +10 VDC, 4 to 20 mA Multi-function input MI2 ~ MI4 (8 steps: Including the main speed, jog, up/down); RS-485 serial interface
	Operating Setting Signal	Keypad	Setting by RUN and STOP
		External Signal	RUN/STOP by MI1 (default) or 2-wire/3-wire control (MI1, MI2, MI3), jog operation, RS-485 serial interface (Modbus)
	Multi-function Input Signal		8-speed switch (including the main speed): ban commands for acceleration/deceleration, 2-speed switch for accel./decel., counter, jogging (inching), external base block, driver reset, NPN/PNP inputs, AVI/ACI analog inputs Switch to a speed as the default.
Multi-function Output Signal (only Relays)		AC drive operating, frequency attained, zero speed, counter, over-torque inspection, external base block, operating modes, anomaly alarm, overheating alarm, emergency stop	
Protection Functions		Over voltage, over current, under voltage, anomalies, overload, overheating, electronic thermal relays, PTC overheating protection	
Operation Functions		Built-in voltage regulators, accel./decel. S-curve, over-voltage/over-current stall prevention, 5 anomalous logs, reverse ban, restart for instantaneous power outage, DC brake, automatic toque/slip compensation and motor parameter adjustment, carrier frequency setting, output frequency limits, parameter reset, PID control, external counter, Modbus protocol, reset and restart for anomalies, energy-saving, fan control (for models with fans), 1 st /2 nd frequency sources and combination, NPN/PNP inputs	
Display Keypad (optional)		6 function keys, 4-digit 7-segment LED, 4 status LEDs, adjustable frequency, self-defined units, parameter settings and lock function, anomaly alarms, Run/Stop/Reset buttons	
Environmental Conditions	Enclosure Rating		IP20
	Pollution Degree		2
	Installation Location		Altitude 1,000m or lower, keeping from corrosive gases, liquids and dust
	Operating Temperature		-10°C to 50°C (VFD007EL21W(-1) requires fan accessories)
	Storage/Transportation Temperature		-20°C to 60°C
	Ambient Humidity		Below 90% RH (non-condensing)
Vibration		1.0 mm, peak to peak 2-13.2 Hz; 0.7-1.0 G, 13.2-55 Hz; 1.0 G, 55-512 Hz; compliant with IEC 60068-2-6	
Certification		CE, RoHS, GB 12668.3, KC (single package only)	

Dimensions

■ Frame A1

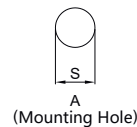
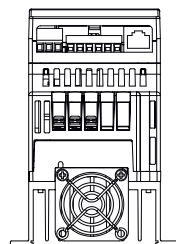
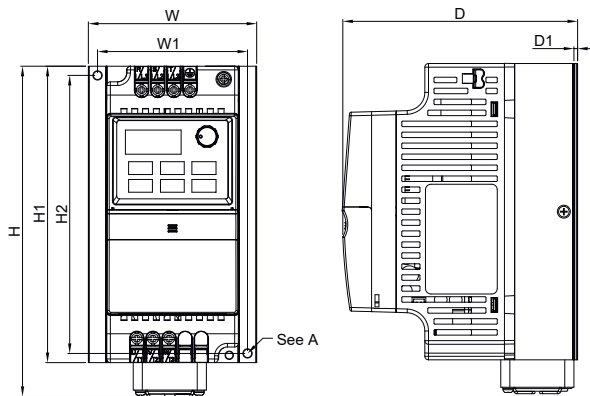


Model

- VFD002EL21W(-1)
- VFD004EL21W(-1)
- VFD004EL43W(-1)
- VFD007EL21W(-1)
- VFD007EL43W(-1)

Frame		W	W1	H	H1	D	D1	S
A1	mm	92.0	82.0	162.0	152	128.7	2.00	5.4
	inch	3.62	3.23	6.38	5.98	5.07	0.08	0.21

■ Frame A2

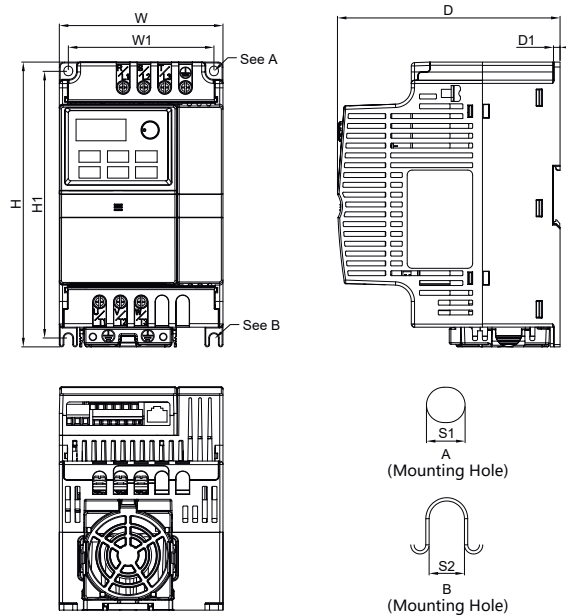


Model

- VFD015EL43W(-1)

Frame		W	W1	H	H1	H2	D	D1	S
A2	mm	92.0	82.0	180.5	162.0	152	128.7	2.00	5.4
	inch	3.62	3.23	7.11	6.38	5.98	5.07	0.08	0.21

■ Frame B



Model

VFD015EL21W(-1)
 VFD022EL21W(-1)
 VFD022EL43W(-1)
 VFD040EL43W(-1)
 VFD055EL43W(-1)

Frame		W	W1	H	H1	D	D1	S1	S2
B	mm	100.0	89.0	174.0	162.9	136.0	4.0	5.9	5.4
	inch	3.94	3.50	6.85	6.42	5.35	0.16	0.23	0.21

Ordering Information

Frame	Cooling Method	Operating Temperature	Power Range	Models
Frame A1	Natural Cooling	-10°C~50°C	230 V: 0.2~0.75 kW 460 V: 0.4~0.75 kW	VFD002EL21W(-1) VFD004EL21W(-1) VFD004EL43W(-1) VFD007EL21W(-1)* VFD007EL43W(-1)
Frame A2	Fan Cooling		460 V: 1.5 kW	VFD015EL43W(-1)
Frame B			230 V: 1.5~2.2 kW 460 V: 2.2~5.5 kW	VFD015EL21W(-1) VFD022EL21W(-1) VFD022EL43W(-1) VFD040EL43W(-1) VFD055EL43W(-1)

NOTE VFDxxxELxxW-1 and VFDxxxELxxW share the same electrical specifications.

*VFD007EL21W(-1): to reach 50°C operating temperature, a fan kit MKEL-AFKM1 is required (without derating).

*VFD007EL21W(-1): to reach 40°C operating temperature, no need for a fan kit (without derating).

Accessories

Keypad



VFD-PU06

- 5 digits
- Parameter duplication and recording
- RJ11 connector
- RS-485 communication



VFD-PU08V

- 4 digits
- RJ45 connector
- RS-485 communication



VFD-PU08

- 4 digits
- RJ45 connector
- RS-485 communication

NOTE

* RJ45 cable is not included for VFD-PU08 & VFD-PU08V.

Cable

RJ45 Cable



No.	Model	Length	
		mm	inch
1	UC-CMC003-01A	300	11.8
2	UC-CMC005-01A	500	19.6
3	UC-CMC010-01A	1000	39.0
4	UC-CMC015-01A	1500	59.0
5	UC-CMC020-01A	2000	78.7
6	UC-CMC030-01A	3000	118.1
7	UC-CMC050-01A	5000	196.8

Fan kit

MKEL-AFKM1



Reactor

RF220X00A





www.nicsanat.com
021-87700210



Industrial Automation Headquarters

Taiwan: Delta Electronics, Inc.

Taoyuan Technology Center
No.18, Xinglong Rd., Taoyuan District,
Taoyuan City 33068, Taiwan
TEL: +886-3-362-6301 / FAX: +886-3-371-6301

Asia

China: Delta Electronics (Shanghai) Co., Ltd.

No.182 Minyu Rd., Pudong Shanghai, P.R.C.
Post code : 201209
TEL: +86-21-6872-3988 / FAX: +86-21-6872-3996
Customer Service: 400-820-9595

Japan: Delta Electronics (Japan), Inc.

Industrial Automation Sales Department
2-1-14 Shibadaimon, Minato-ku
Tokyo, Japan 105-0012
TEL: +81-3-5733-1155 / FAX: +81-3-5733-1255

Korea: Delta Electronics (Korea), Inc.

1511, 219, Gasan Digital 1-Ro., Geumcheon-gu,
Seoul, 08501 South Korea
TEL: +82-2-515-5305 / FAX: +82-2-515-5302

Singapore: Delta Energy Systems (Singapore) Pte Ltd.

4 Kaki Bukit Avenue 1, #05-04, Singapore 417939
TEL: +65-6747-5155 / FAX: +65-6744-9228

India: Delta Electronics (India) Pvt. Ltd.

Plot No.43, Sector 35, HSIIDC Gurgaon,
PIN 122001, Haryana, India
TEL: +91-124-4874900 / FAX: +91-124-4874945

Thailand: Delta Electronics (Thailand) PCL.

909 Soi 9, Moo 4, Bangpoo Industrial Estate (E.P.Z),
Pattana 1 Rd., T.Phraksa, A.Muang,
Samutprakarn 10280, Thailand
TEL: +66-2709-2800 / FAX: +66-2709-2827

Australia: Delta Electronics (Australia) Pty Ltd.

Unit 20-21/45 Normanby Rd., Notting Hill Vic 3168, Australia
TEL: +61-3-9543-3720

Americas

USA: Delta Electronics (Americas) Ltd.

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

Brazil: Delta Electronics Brazil

Rua Itapeva, 26 - 3º, andar Edifício Itapeva,
One - Bela Vista 01332-000 - São Paulo - SP - Brazil
TEL: +55-12-3932-2300 / FAX: +55-12-3932-237

Mexico: Delta Electronics International Mexico S.A. de C.V.

Gustavo Baz No. 309 Edificio E PB 103
Colonia La Loma, CP 54060
Tlalnepantla, Estado de México
TEL: +52-55-3603-9200

EMEA

EMEA Headquarters: Delta Electronics (Netherlands) B.V.

Sales: Sales.IA.EMEA@deltaww.com
Marketing: Marketing.IA.EMEA@deltaww.com
Technical Support: iatechnicalsupport@deltaww.com
Customer Support: Customer-Support@deltaww.com
Service: Service.IA.emea@deltaww.com
TEL: +31(0)40 800 3900

BENELUX: Delta Electronics (Netherlands) B.V.

Automotive Campus 260, 5708 JZ Helmond, The Netherlands
Mail: Sales.IA.Benelux@deltaww.com
TEL: +31(0)40 800 3900

DACH: Delta Electronics (Netherlands) B.V.

Coesterweg 45, D-59494 Soest, Germany
Mail: Sales.IA.DACH@deltaww.com
TEL: +49(0)2921 987 0

France: Delta Electronics (France) S.A.

ZI du bois Challand 2, 15 rue des Pyrénées,
Lisses, 91090 Evry Cedex, France
Mail: Sales.IA.FR@deltaww.com
TEL: +33(0)1 69 77 82 60

Iberia: Delta Electronics Solutions (Spain) S.L.U

Ctra. De Villaverde a Vallecas, 265 1º Dcha Ed.
Hormigueras – P.I. de Vallecas 28031 Madrid
TEL: +34(0)91 223 74 20

Carrer Llacuna 166, 08018 Barcelona, Spain

Mail: Sales.IA.Iberia@deltaww.com

Italy: Delta Electronics (Italy) S.r.l.

Via Meda 2-22060 Novedrate(CO)
Piazza Grazioli 18 00186 Roma Italy
Mail: Sales.IA.Italy@deltaww.com
TEL: +39 039 8900365

Russia: Delta Energy System LLC

Vereyskaya Plaza II, office 112 Vereyskaya str.
17 121357 Moscow Russia
Mail: Sales.IA.RU@deltaww.com
TEL: +7 495 644 3240

Turkey: Delta Greentech Elektronik San. Ltd. Sti. (Turkey)

Şerifali Mah. Hendem Cad. Kule Sok. No:16-A
34775 Ümraniye – İstanbul
Mail: Sales.IA.Turkey@deltaww.com
TEL: + 90 216 499 9910

MEA: Eltek Dubai (Eltek MEA DMCC)

OFFICE 2504, 25th Floor, Saba Tower 1,
Jumeirah Lakes Towers, Dubai, UAE
Mail: Sales.IA.MEA@deltaww.com
TEL: +971(0)4 2690148