Quality Compliance

Certificate of Conformity

The designs of Variable Frequency Drive, VFD CP series, of Delta Electronics were in accordance with following European Directives and International standards and met the high quality requirements on Safety and Environment.

Directive/Standard	**Description**
2014/35/EU	**Low Voltage Directive(LVD)**
EN 61800-5-1 Part 5-1:	**Adjustable speed electrical power drive systems – Part 5-1: Safety requirements – Electrical, thermal and energy**
4.2	Protection against electric shock, thermal, and energy hazards – Fault conditions
4.3.1	Decisive voltage classification
4.3.2	Protective separation
4.3.3	Protection against direct contact
4.3.4	Protection in case of direct contact
4.3.5.1	Protection against indirect contact - General
4.3.5.2	Insulation between live parts and accessible conductive parts
4.3.5.3	Protective bonding circuit
4.3.5.4	Protective earthing conductor
4.3.5.5	Means of connection for the protective earthing conductor
4.3.5.6	Special features in equipment for protective class II
4.3.6	Insulation
4.3.7	Enclosures
4.3.8	Wiring and connections
4.3.9	Output short-circuit requirements
4.3.10	Residual Current-operated protective (RCD) or monitoring (RCM) device compatibility
4.3.11	Capacitor discharge
4.4	Protection against thermal hazards
4.5.1	Electrical energy hazards
4.5.2	Mechanical energy hazards
4.6	Protection against environmental stresses
5.2.1	Visual inspection
5.2.2	Mechanical tests
5.2.3	Electrical tests
5.2.4	Abnormal operation tests
5.2.5	Material tests
5.2.6	Environmental tests
6.1	Information and marking requirements - General

Quality Compliance

Directive/Standard	Description
2014/30/EU	**Electromagnetic Compatibility (EMC)**
EN 61800-3 Part 3:	**Adjustable speed electrical power drive systems – Part 3: EMC requirements and specific test methods**
EN 61000-6-3	**Emission –Residential, commercial and light-industrial environments**
EN 61000-6-4	**Emission – Industrial environments**
EN 61800-3	Conducted Emission : Category C3
EN 61800-3	Radiated Emission : Category C3
EN 61000-6-1	**Immunity –Residential, commercial and light-industrial environments**
EN 61000-6-2	**Immunity – Industrial environments**
EN 61800-3	**Immunity**
EN 61000-4-2	ESD: Electrostatic Discharge
EN 61000-4-3	RS: Radiated Susceptibility
EN 61000-4-4	EFT: Electrical Fast Transient
EN 61000-4-5	Surge immunity
EN 61000-4-6	CS: Conducted Susceptibility
EN 61800-3	**Low frequency immunity**
EN 61000-4-11	Voltage dips and short interruption
IEC 61000-2-4	Voltage unbalance
IEC 61000-2-4	Frequency variations
EN 61800-3	**Low frequency emission**
EN 61000-3-2	Harmonics(I ≤ 16A)
EN 61000-3-12	Harmonics(16A < I ≤ 75A)

Quality Compliance

Directive/Standard	Description
UL508C **CAN/CSA-C22.2 No. 14-2005**	**Power Conversion Equipment** **Industrial Control Equipment** **cUL marking (Approved by UL)**
Enclosure Construction	
Section 6 (UL 50)	Frames and Enclosure
Environmental Ration Related Enclosure Construction	
Section 7 (UL 50)	General
Section 8 (UL 50)	Protection against corrosion
Environmental Rating Related Enclosure Performance	
section 9 (UL 50)	General
Non-Environmental Rating Related Enclosure Performance	
section 10	General
section 11	Securement of snap-on cover test
Instructions and Marking Pertaining to Enclosures	
section 12	Permanence of marking
section 13	Details
Device Construction	
Section 14	General
Section 15	Protection against corrosion
Section 16	Provisions for Mounting
Section 17	Insulation Material
Section 18	Means for switching
Section 19	Live Parts
Section 20	Drive Protection
Section 21	Capacitors
Section 23	Internal Wiring
Section 24	External interconnections
Section 25	Transformers
Section 26	Blower Motors
Section 27	Supply Connections
Section 29	Risk of Electric Shock
Section 30	Risk of Fire
Section 32	Secondary Circuits
Section 35	Isolation Devices
Section 36	Spacings
Section 37	Grounding
Section 38	Accessories
Device Performance	
Section 39	General
Section 40	Temperature
Section 41	Abnormal operation test
Section 41.1	General

Quality Compliance

Directive/Standard	Description
UL508C **CAN/CSA-C22.2 No. 14-2005**	**Power Conversion Equipment** **Industrial Control Equipment** **cUL marking (Approved by UL)**
Section 41.2	Contactor overload
Section 41.3	Single phasing
Section 41.4	Inoperative blower motor
Section 41.5	Clogged filter
Section 41.6	Current limiting control
Section 42	Full-load motor-running current tables
Section 43	Solid state motor overload protection test
Section 44	Dielectric voltage withstand test
Section 45	Short circuit test – standard fault currents
Section 48	Transient voltage surge suppression Test
Section 50	Breakdown of component
Section 51	Terminal torque test
Section 53	Secondary circuits test
Section 54	Rating
Device Marking	
Section 55	General
Section 56	Overload, over-current, and over-speed protection
Section 57	Branch circuit short circuit protection
Section 60	Wiring terminal markings
Section 61	Cautionary Markings
Section 62	Instructions and markings pertaining to accessories
Section 63	Marking location
Manufacturing and production line test	
Section 64	Circuit functionality evaluation
Section 64A	Production-line dielectric voltage withstand test

Quality Compliance

Regional Certification	Description
Australia	**RCM for 0.7KW-355KW** **Section 182 of the Australian Radio communications Act 1992**
EN 61800-3	EMI: Conducted and Radiated emission
Russia	**EAC**
TP TC 004/2011	Safety of low voltage equipment
TP TC 020/2011	Electromagnetic compatibility of technical means
Miscellaneous standards	
ISTA Procedure 1A	Package Drop test and package vibration test Packaged-Products weighing 150 lb (68 kg) or Less
ISTA Procedure 2B	Package Drop test and package vibration test Packaged-Products weighing over 150 lb (68 kg)
EN 50178	Operation and non-operation vibration test

Performance upon above Directives/Standards might be discrete based on different installation and operation, reading user manual and quick start is advised.

Issued by: Brad. Wang Date: **2018/3/14**

Industrial Automation Business Group
QE Manager