

APPLICATION FOR LOW VOLTAGE DIRECTIVE

On Behalf of

Frecon Electric (Shenzhen) Co.,Ltd.

Inverter

Model: See appendix 3

Prepared For : Frecon Electric (Shenzhen) Co.,Ltd.
Second Floor, No.3 Zhenbao Industrial
Zone, No.137 Shiyan Road, Shiyan Street, Bao'An
District, Shenzhen, China

Prepared By : Beide (Shenzhen) Product Service Limited
China: 6F, Bldg E, Hourui 3rd Ind Zone, Xixiang,
Bao'an Dist, Shenzhen, China

Date of Test : Mar.14-Apr.01,2022

Date of Report : Apr.01,2022

Report Number : B-S2203A0792

LVD Report EN 61800-5-1 Adjustable Speed Electrical Power Drive Systems--- Part 5-1: Safety Requirements--- Electrical, Thermal and Energy	
Testing laboratory	Beide (Shenzhen) Product Service Limited
Address	6F, Bldg E, Hourui 3rd Ind Zone, Xixiang, Bao'an Dist, Shenzhen, China
Report body.....	Beide (Shenzhen) Product Service Limited
Address(China).....	6F, Bldg E, Hourui 3rd Ind Zone, Xixiang, Bao'an Dist, Shenzhen, China
Applicant	Frecon Electric (Shenzhen) Co.,Ltd.
Address	Second Floor,No.3 Zhenbao Industrial Zone,No.137 Shiyan Road,Shiyan Street,Bao'An District,Shenzhen,China
Client No.....	0755D885
Standard	EN 61800-5-1: 2007+ A11:2021
Test Result	Compliance with EN 61800-5-1: 2007+ A11:2021
Procedure deviation	N.A.
Non-standard test method	N.A.
Type of test object	Inverter
Trademark	N.A.
Model/type reference	FR500(A)-4T-5.5G/7.5PB
Rating.....	380V~,50/60Hz,5.5kW
Manufacturer	Frecon Electric (Shenzhen) Co.,Ltd.
Address	Second Floor,No.3 Zhenbao Industrial Zone,No.137 Shiyan Road,Shiyan Street,Bao'An District,Shenzhen,China
Test item particulars	N.A.
Class of equipment.....	Class I
IP degree.....	IP20

General remarks

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item(s) tested.

"(see appended table)" refers to a table appended to the report.

"(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

Throughout this report a comma (point) is used as the decimal separator.

Remark:

1, All models have same function and structure.

2, All tests are carried out on FR500(A)-4T-5.5G/7.5PB

Photos view:

(See appendix 1)

Marking Label:

(See appendix 2)

Model list:

(See appendix 3)

Possible test case verdicts :	
test case does not apply to the test object	: N(.A.)
test object does meet the requirement	: P(ass)
test object does not meet the requirement	: F(ail)
Name and address of the testing laboratory: <u>Beide (Shenzhen) Product Service Limited</u> <u>6F, Bldg E, Hourui 3rd Ind Zone, Xixiang,</u> <u>Bao'an Dist, Shenzhen, China</u>	
Reported by :	<u>Austin.Zhong</u> Signature / Austin.Zhong
	<u>Apr.01,2022</u> Date
Checked by :	<u>Anna Deng</u> Signature / Anna.Deng
	<u>Apr.01,2022</u> Date
Approved by :	<u>Martin Wong</u> Signature / Martin.Wong
	<u>Apr.01,2022</u> Date



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Clause	Requirement – Test	Result - Remark	Verdict
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4	Protection against electric shock, thermal, and energy hazards		P
4.1	General		-
	This Clause defines the minimum requirements for the design and construction of a PDS, to ensure its safety during installation, normal operating conditions and maintenance for the expected lifetime of the PDS.		P
4.2	Fault conditions		P
	PDS shall be designed to avoid operating modes or sequences that can cause a fault condition or component failure leading to a hazard, unless other measures to prevent the hazard are provided by the installation.		P
4.3	Protection against electric shock		P
4.3.1	Decisive voltage classification		P
4.3.1.1	Use of decisive voltage class (DVC)		P
4.3.1.2	Limits of DVC		P
4.3.1.3	Requirements for protection		P
	the requirements for the application of basic insulation or protective separation, dependent on the DVC of the circuit under consideration and of adjacent circuits.		P
4.3.1.4	Circuit evaluation		P
4.3.1.4.1	General		-
4.3.1.4.2	A.C. working voltage		P
	The working voltage has an r.m.s. value U_{AC} and a recurring peak value U_{ACP} .		P
	The DVC is that of the lowest voltage row of Table 3 for which both of the following conditions are satisfied.		P
	$U_{AC} \leq U_{ACL}$		P
	$U_{ACP} \leq U_{ACPL}$		P
4.3.1.4.3	D.C. working voltage		N
4.3.1.4.4	Pulsating working voltage		P
4.3.2	Protective separation		P
	Protective separation shall be achieved by application of materials resistant to degradation, as well as by special constructive measures; and		P
	- by double or reinforced insulation, or		P
	- by protective screening		P

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Clause	Requirement – Test	Result - Remark	Verdict
	- by protective impedance		P
	The protective separation shall be fully and effectively maintained under all conditions of intended use of the PDS.		P
4.3.3	Protection against direct contact		P
4.3.3.1	General		-
	Protection against direct contact is employed to prevent persons from touching live parts which do not meet the requirements of 4.3.4. It shall be provided by one or more of the measures given in 4.3.3.2 and 4.3.3.3.		P
	For integrated PDS the motor shall meet the requirements of IEC 60034-5. For the BDM the protection shall be provided by one or more of the measures given in 4.3.3.2 and 4.3.3.3.	The motor shall meet the requirements of IEC 60034-5 when installing	P
4.3.3.2	Protection by means of insulation of live parts		P
4.3.3.3	Protection by means of enclosures and barriers	IP20	P
4.3.4	Protection in case of direct contact		P
4.3.4.1	General		-
	Protection in case of direct contact is required to ensure that contact with live parts does not produce a shock hazard.		P
4.3.4.2	Protection using DVC A		N
	Unearthed circuits of DVC A, and earthed circuits of DVC A used within a zone of equipotential bonding (see 3.44), do not require protection in case of direct contact.		N
4.3.4.3	Protection by means of protective impedance		P
4.3.4.4	Protection by means of limited voltages		P
4.3.5	Protection against indirect contact		P
4.3.5.1	General	Class I	-
4.3.5.2	Insulation between live parts and accessible conductive parts		P
	Accessible conductive parts of equipment shall be separated from live parts at least by basic insulation or by clearances as in 4.3.6.4.		P
4.3.5.3	Protective bonding circuit		P
4.3.5.3.1	General		-
4.3.5.3.2	Rating of protective bonding		P
4.3.5.3.3	Protective bonding impedance		P
4.3.5.4	Protective earthing conductor		P
4.3.5.5	Means of connection for the protective earthing conductor		P

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Clause	Requirement – Test	Result - Remark	Verdict
4.3.5.5.1	General		-
4.3.5.5.2	Touch current in case of failure of protective earthing conductor	The touch current shall not exceed 3.5 mA a.c. or 10 mA d.c.	P
4.3.5.6	Special features in equipment for protective class II		N
4.3.6	Insulation	See user manual	P
4.3.6.1	General		P
4.3.6.1.1	Influencing factors		-
	Insulation shall be selected after consideration of the following influences:		P
	-pollution degree;	Pollution 2	P
	- overvoltage category;	Category I	P
	- supply earthing system;	TN system	P
	- insulation voltage;		P
	- location of insulation;		P
	- type of insulation;		P
4.3.6.1.2	Pollution degree		P
	The insulation may be determined according to pollution degree 2 if one of the following applies:		P
	a) instructions are provided with the PDS indicating that it shall be installed in a pollution degree 2 environment,		P
	b) the specific installation application of the PDS is known to be a pollution degree 2 environment,		P
	c) the PDS enclosure or coatings applied within the PDS according to 4.3.6.8.4.2 or 4.3.6.8.6 provide adequate protection against what is expected in pollution degree 3 and 4 (conductive pollution and condensation).		P
4.3.6.1.3	Overvoltage category	Category I	P
	Category I applies to equipment connected to a circuit where measures have been taken to reduce transient overvoltages to a low level.		P
4.3.6.1.4	Supply earthing systems		P
	IEC 60364-1 describes the three following basic types of earthing system.	TN system	P
4.3.6.1.5	Insulation voltages		P
4.3.6.2	Insulation to the surroundings		P
4.3.6.2.1	General		-
	Insulation for basic, supplementary, and reinforced insulation between a circuit and its		P

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Clause	Requirement – Test	Result - Remark	Verdict
	surroundings shall be designed according to the impulse voltage or the temporary overvoltage or the working voltage of the circuit		
4.3.6.2.2	Circuits connected directly to the supply mains		P
4.3.6.2.3	Circuits not connected directly to the supply mains		P
4.3.6.2.4	Insulation between circuits		P
	Insulation between two circuits shall be designed according to the circuit having the more severe requirement.		P
4.3.6.3	Functional insulation		P
4.3.6.4	Clearance distances	$\geq 0.80\text{mm}$	P
4.3.6.4.2	Electric field homogeneity		P
4.3.6.4.3	Clearance to conductive enclosures		P
4.3.6.5	Creepage distances		P
4.3.6.5.1	General		-
	For PWBs the Cr shall be more than 2.0 mm, for insulating material group the Cr shall be more than 2.8 mm	$\geq 4.0\text{mm}$	P
4.3.6.5.2	Materials		P
	Insulating material group IIIb		P
4.3.6.6	Coating		P
4.3.6.7	PWB spacings for functional insulation	The PWB has a flammability rating of V-0	P
4.3.6.8	Solid insulation		P
4.3.6.8.1	General		-
4.3.6.8.2	Requirements for electrical withstand capability		P
4.3.6.8.2.1	Basic or supplementary insulation		P
4.3.6.8.2.2	Double and reinforced insulation		P
4.3.6.8.2.3	Functional insulation		P
4.3.6.8.3	Thin sheet or tape material		P
4.3.6.8.4	Printed wiring boards (PWBs)		P
4.3.6.8.4.1	General		-
4.3.6.8.4.2	Use of coating materials		P
4.3.6.8.5	Wound components		P
4.3.6.8.6	Potting materials	Shall be used to provide solid insulation	P
4.3.6.9	Insulation requirements above 30 kHz		N

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Clause	Requirement – Test	Result - Remark	Verdict
4.3.7	Enclosures		P
4.3.7.1	General		-
4.3.7.2	Cast metal		P
	Malleable iron or permanent-mould cast aluminium, brass, bronze, or zinc, except at threaded holes for conduit, where a minimum of 6,4 mm is required		P
4.3.7.3	Sheet metal		P
	not less than 0,8 mm thick for uncoated steel, 0,9 mm thick for zinc-coated steel, and 1,2 mm thick for non-ferrous metal		P
4.3.8	Wiring and connections		P
4.3.8.1	General		-
4.3.8.2	Routing		P
4.3.8.3	Colour coding		P
4.3.8.4	Splices and connections		P
4.3.8.5	Accessible connections		P
4.3.8.6	Interconnections between parts of the PDS		P
4.3.8.7	Supply connections		P
4.3.8.8	Terminals		P
4.3.8.8.1	Construction requirements		P
	All parts of terminals which maintain contact and carry current shall be of metal having adequate mechanical strength.		P
4.3.8.8.2	Connecting capacity		P
4.3.8.8.3	Connection		P
	Terminals for connection to external conductors shall be readily accessible during installation.		P
4.3.8.8.4	Wire bending space for wires 10 mm ² and greater		P
4.3.9	Output short-circuit requirements		P
	The PDS shall not present a thermal hazard, electric shock or energy hazard under shortcircuit conditions at any output that is capable of providing power.		P
4.3.10	Residual current-operated protective (RCD) or monitoring (RCM) device compatibility		P
4.3.11	Capacitor discharge		P
	Capacitors within a PDS shall be discharged to a voltage less than 60 V, or to a residual charge less than 50 µC, within 5 s after the removal of power from the PDS.		P

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Clause	Requirement – Test	Result - Remark	Verdict
4.3.12	Access conditions for high-voltage PDS		P
	The high voltage sections (transformer, converter, motor, etc.) shall be protected by an appropriate housing enclosure according to IEC 60204-11 with respect to personnel safety.		P
4.4	Protection against thermal hazards		P
4.4.1	Minimizing the risk of ignition		P
	The risk of ignition due to high temperature shall be minimized by the appropriate selection and use of components and by suitable construction.		P
4.4.2	Insulating materials		P
4.4.2.1	General		-
4.4.2.2	Material requirements		P
	The insulating material shall have a CTI of 100 or greater.		P
	Generic materials for the direct support of uninsulated live parts of minimum thickness shall be 0.7 mm, maximum temperature 150 °C		P
	Glow-wire test at 850 °C		P
4.4.3	Flammability of enclosure materials		P
	Materials used for enclosures of PDS shall meet the test requirements of 5.2.5.4.		P
	Metals, ceramic materials, and glass which is heat-resistant tempered, wired or laminated, are considered to comply without test.		P
4.4.4	Temperature limits		P
4.4.4.1	Internal parts		P
	Equipment and its component parts shall not attain temperatures in excess of those in Table 15 when tested in accordance with the ratings of the equipment.		P
4.4.4.2	External parts of CDM		P
4.4.5	Specific requirements for liquid cooled PDS		N
4.5	Protection against energy hazards		P
4.5.1	Electrical energy hazards		P
	Failure of any component within the PDS shall not release sufficient energy to lead to a hazard, for example, expulsion of material into an area occupied by personnel.		P
4.5.2	Mechanical energy hazards		P
4.5.2.1	General		-
4.5.2.2	Critical torsional speed		P

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Clause	Requirement – Test	Result - Remark	Verdict
4.5.2.3	Transient torque analysis		P
4.5.3	Acoustic noise emission	≤60dB	P
4.6	Protection against environmental stresses		P
	The PDS/CDM/BDM shall not present any hazards as a result of specified environmental stresses.		P

5	Test requirements		P
5.1	General		-
5.1.1	Test objectives and classification	Type tests	P
5.1.2	Selection of test samples		P
	When testing a range or series of similar products, it may not be necessary to test all models in the range.		P
5.1.3	Sequence of tests		P
5.1.4	Earthing conditions		P
	-neutral to earth;		N
	-line to earth;		N
	-neutral to earth through high impedance;		P
	-isolated (not earthed).		N
5.1.5	Compliance		P
	Compliance may only be claimed if all relevant tests have been passed.		P
5.1.6	Test overview		P
5.2	Test specifications		P
5.2.1	Visual inspections (type test, sample test and routine test)		P
5.2.2	Mechanical tests		P
5.2.2.1	Clearances and creepage distances (type test)	See prior relevant clause	P
5.2.2.2	PWB short-circuit test (type test)		P
	On PWBs, functional insulation provided by spacings which are less than those specified value		P
5.2.2.3	Non-accessibility test (type test)		P
	This test is intended to show that live parts, protected by means of enclosures and barriers in compliance with 4.3.3.3, are not accessible.		P
5.2.2.4	Enclosure integrity test (type test)		P
	The claimed IP rating of the enclosure shall be verified.		P
5.2.2.5	Deformation tests		P

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Clause	Requirement – Test	Result - Remark	Verdict
5.2.2.5.1	General		-
5.2.2.5.2	Deflection test (type test)		P
	The enclosure shall be held firmly against a rigid support and subjected to a steady force of 250 N applied for 5 s through the end of a rod having a 12,7 mm by 12,7 mm square, flat steel face.		P
	Damage to the finish, small dents and small chips which do not adversely affect the protection against electric shock or moisture, may be ignored.		P
5.2.2.5.3	Impact test (type test)		P
	A solid smooth steel sphere, approximately 50 mm in diameter and with a mass of 500 g ± 25 g, shall be permitted to fall freely from rest through a vertical distance of 1 300 mm onto the sample. (Vertical surfaces are exempt from this test.)		P
	In addition, the steel sphere shall be suspended by a cord and swung as a pendulum in order to apply a horizontal impact, dropping through a vertical distance of 1 300 mm. (Horizontal surfaces are exempt from this test.)		P
5.2.3	Electrical tests		P
5.2.3.1	Impulse voltage test (type test and sample test)		P
	The impulse voltage test is successfully passed if no puncture, flashover, or sparkover occurs.	no puncture, flashover, or sparkover occurs	P
5.2.3.2	A.C. or d.c. voltage test (type test and routine test)		P
5.2.3.2.1	Purpose of test		P
	The test is used to verify that the clearances and solid insulation of components has adequate dielectric strength to resist overvoltage conditions.		P
5.2.3.2.2	Value and type of test voltage		P
5.2.3.2.3	Performing the voltage test		P
5.2.3.2.4	Duration of the a.c. or d.c. voltage test		P
	The duration of the test shall be at least 5 s for the type test and 1 s for the routine test.		P
5.2.3.2.5	Verification of the a.c. or d.c. voltage test		P
	The test is successfully passed if no electrical breakdown occurs during the test.		P
5.2.3.3	Partial discharge test (type test, sample test)		P
5.2.3.4	Protective impedance (type test and routine test)		P
	A type test shall be performed to verify that the current through a protective impedance under normal operating conditions does not exceed the values given in 4.3.4.3.		P

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Clause	Requirement – Test	Result - Remark	Verdict
5.2.3.5	Touch current measurement (type test)		P
	The touch current shall be measured to determine if the measures of protection need not be taken (see 4.3.5.5.2).		P
5.2.3.6	Short-circuit test and breakdown of components test (type test)		P
5.2.3.6.1	General		-
5.2.3.6.2	Test configuration		P
5.2.3.6.2.1	Supply voltage and current		P
	PDS rated for d.c. input shall be tested using a d.c. source. PDS rated for a.c input shall be tested at their rated input frequency.		P
	The open-circuit voltage of the supply shall be 100 % - 105 % of the rated input voltage. The open-circuit voltage may exceed 105 % of the rated input voltage at the request of the manufacturer.		P
5.2.3.6.3	Short-circuit test		P
5.2.3.6.3.1	Load conditions		P
	The short circuit test shall be performed with the CDM/BDM at full load or light load whichever creates the more severe condition.		P
5.2.3.6.3.2	Location of short-circuit		P
	All output terminals of each power output tested shall be simultaneously connected together, using an appropriate switching device.		P
5.2.3.6.4	Breakdown of components test		P
5.2.3.6.4.1	Load conditions		P
	The breakdown of a component, identified as a result of the circuit analysis of 4.2, shall be tested with the CDM/BDM at full load or light load whichever creates the more severe condition.		P
5.2.3.6.4.2	Application of short-circuit or open-circuit		P
	The short circuit or open circuit shall be applied with cable of a cross-section of minimum 2,5 mm ² and an appropriate switching device. The length of the loop shall be as short as practical to perform the test.		P
	Each identified component shall be subjected to only one Breakdown of components test.		P
5.2.3.6.5	Test sequence		P
	The PDS shall be powered, with its output(s) operating.		P
5.2.3.6.6	Pass criteria		P
	After test there shall be no emission of flame or molten metal, the surgical cotton indicator shall		P

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Clause	Requirement – Test	Result - Remark	Verdict
	not have ignited, the earth connection shall not have opened, the door or cover shall not have blown open, accessible SELV and PELV circuits shall not exhibit voltages greater than the time dependent voltages and live parts at voltages greater than decisive voltage class A shall not become accessible		
5.2.3.7	Capacitor discharge (type test)		P
	Verification of the capacitor discharge time as required by 4.3.11 may be done by a type test and/or by calculation.		P
5.2.3.8	Temperature rise test (type test)		P
	The test is intended to ensure that parts and accessible surfaces of the PDS do not exceed the temperature limits specified in 4.4 and that the manufacturer's temperature limits of safetyrelevant parts are not exceeded.		P
	No corrected temperature shall exceed the rated temperature of the material or component measured.		P
5.2.3.9	Protective bonding (type test and routine test)		P
5.2.4	Abnormal operation tests		P
5.2.4.1	General		-
5.2.4.2	Test duration		P
	The individual tests shall be performed until terminated by a protective device or mechanism (internal or external), a component failure occurs, or the temperature stabilizes.		P
5.2.4.3	Pass criteria	See 5.2.3.6.6	P
5.2.4.4	Loss of phase (type test)		P
5.2.4.5	Cooling failure tests (type tests)		N
5.2.4.5.1	General		-
5.2.4.5.2	Inoperative blower motor		P
	A PDS having forced ventilation shall be operated at rated load with blower motor or motors made inoperative, singly or in combination from a single fault, by physically preventing their rotation.		P
5.2.4.5.3	Clogged filter		N
5.2.4.5.4	Loss of coolant		N
5.2.5	Material tests		P
5.2.5.1	High current arcing ignition test (type test)		N
	The average number of arcs to ignition of the specimens tested shall be not less than 15 for V-0 class materials and not less than 30 for other		N

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Clause	Requirement – Test	Result - Remark	Verdict
	materials.		
5.2.5.2	Glow-wire test (type test)		P
	The glow-wire test shall be made under the conditions specified in 4.4.2 according to IEC 60695-2-10 and IEC 60695-2-13.	At 850 °C	P
5.2.5.3	Hot wire ignition test (type test – alternative to glow-wire test)		P
	The average ignition time of the specimens tested shall not be less than 15 s.		P
5.2.5.4	Flammability test (type test)		P
	The flame shall be applied for 5 s and removed for 5 s. The operation shall be repeated until the specimen has been subjected to five applications of the test flame.		P
5.2.6	Environmental tests (type tests)		P
5.2.6.1	General		-
5.2.6.2	Acceptance criteria		P
	-no degradation of any safety-relevant component of the PDS/CDM/BDM;		P
	-no potentially hazardous behaviour of the PDSICDMIBDM during the test;		P
	-no sign of component overheating;		P
	-no live part shall become accessible;		P
	-no cracks in the enclosure and no damaged or loose insulators;		P
	-pass routine a.c. or d.c. voltage test 5.2.3.2;		P
	-pass Protective bonding test 5.2.3.9;		P
	-no potentially hazardous behaviour when the PDS/CDM/BDM is operated following the test.		P
5.2.6.3	Climatic tests		P
5.2.6.3.1	Dry heat test (steady state)	According to IEC 60068-2-2	P
5.2.6.3.2	Damp heat test (steady state)	According to IEC 60068-2-78	P
5.2.6.4	Vibration test (type test)		P
	For PDS/CDM/BDM with a mass more than 100 kg, this test may be performed on subassemblies.		P
5.2.7	Hydrostatic pressure (type test and routine test)		P
6	Information and marking requirements		P
6.1	General		-
	All information shall be in an appropriate language, and documents shall have identification references.	Refer to manufacturer's user manual	P

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Clause	Requirement – Test	Result - Remark	Verdict
6.2	Information for selection		P
	-the name or trademark of the manufacturer, supplier or importer;		P
	-catalogue number or equivalent;		P
	-input and output voltage range, current, and power rating information, including:		P
	number of phases;		P
	frequency range;		P
	-protective class;	Class I	P
	-the type of electrical supply system (e.g. TN, IT, etc.) to which the PDS/CDM/BDM may be connected;	TN	P
	-prospective short-circuit current rating(s) and protective device characteristics	Over-current protection, over-voltage protection, overheat protection, overload protection, under-voltage protection, underload protection etc.	P
	-field supply requirements (if any);	Indoor	P
	-coolant type and design pressure for liquid cooled product;	air cooling	P
	-IP rating;	IP20	P
	-operating and storage environment;		P
	-reference(s) to relevant international standard(s) for manufacture, test, or use;		P
	-date code, or serial number from which the date of manufacture can be determined;		P
	-reference to instructions for installation, use and maintenance.		P
6.3	Information for installation and commissioning		P
6.3.1	General		-
6.3.2	Mechanical considerations		P
	The following drawings shall be prepared by the manufacturer:		P
	-dimensional drawing, including mass information;		P
	-mounting drawing.		P
	Dimensions, mass, etc., shall be in SI units.		P
6.3.3	Environment		P
	The following environmental conditions shall be specified, for operation, transportation and storage:	Storage:-20~+60°C	P
	-climatic (temperature, humidity, altitude, pollution, ultra-violet light, etc.);	-10~+45°C, <1000m, pollution	P

EN 61800-5-1			
Clause	Requirement – Test	Result - Remark	Verdict
		2, <95%	
	-mechanical;		P
	-electrical.		P
6.3.4	Handling and mounting		P
	In order to prevent injury or damage, the installation documents shall include warnings of any hazards which can be experienced during installation. Where necessary, instructions shall be provided for:		P
	-packing and unpacking;		P
	-moving;		P
	-lifting;		P
	-strength and rigidity of mounting surface;		P
	-fastening;		P
	-provision of adequate access for operation, adjustment and maintenance.		P
6.3.5	Motor and driven equipment		P
6.3.5.1	Motor selection		P
	Where necessary for CDM/BDM, information on suitable motor specifications (for example, based on IEC 60034-1) shall be provided.		P
6.3.5.2	Motor integrated sensors		P
	Insulation requirements shall be identified (see 4.3.5 and 4.3.6).		P
6.3.5.3	Critical torsional speeds		P
	When required, the PDS supplier shall provide all relevant motor information to enable critical torsional speeds to be identified (see 4.5.2.2).		P
6.3.5.4	Transient torque analysis		P
	When required, the PDS supplier shall provide all relevant electrical and mechanical information to enable transient torque analysis to be performed (see 4.5.2.3).		P
6.3.6	Connections		P
6.3.6.1	General		-
	Information shall be provided to enable the installer to make safe electrical connection to the PDS.		P
6.3.6.2	Interconnection and wiring diagrams		P
6.3.6.3	Conductor (cable) selection		P
6.3.6.4	Terminal capacity and identification		P

EN 61800-5-1			
Clause	Requirement – Test	Result - Remark	Verdict
6.3.6.5	Protection requirements		P
	The manuals shall also indicate the precautions to be taken to ensure that the safety of ELV connections is maintained during installation.		P
6.3.6.6	Earthing		P
	The installation manual shall specify requirements for safe earthing of the PDS/CDM/BDM.		P
6.3.6.7	Protective earthing conductor current		P
6.3.6.8	Special requirements		P
6.3.7	Overcurrent or short-circuit protection		P
	Where external devices are necessary to protect against overcurrent or short-circuit, the installation manual shall specify the required characteristics (see also 5.2.2.2, 5.2.3.6.2, 5.2.4.2).		P
6.3.8	Motor overload protection		P
6.3.9	Commissioning		P
	Commissioning information shall include references to hazards that might be encountered during commissioning, for example those mentioned in 6.4 and 6.5.		P
6.4	Information for use		P
6.4.1	General		-
6.4.2	Adjustment		P
6.4.3	Labels, signs and signals	See EUT	P
6.4.3.1	General		-
6.4.3.2	Isolators		P
6.4.3.3	Visual and audible signals		P
6.4.3.4	Hot surfaces		P
6.4.3.5	Equipment marking		P
6.5	Information for maintenance		P
6.5.1	General		-
6.5.2	Capacitor discharge		P
6.5.3	Auto restart/bypass connection		P
6.5.4	PT/CT connection		P
6.5.5	Other hazards		P

TABLE1		Touch Current Measurement		
Condition	Test Voltage	Value	Limit (mA)	Comments
enclosure	380V	0.1mA	3.5	P

TABLE 2		Components			P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Mark(s) of conformity	
E-Cap	ZEASSET	FE20400822A6C0 95 76.9*143	15000UF 400V	UL	
PCB	SHENZHEN SUNFAR ELECTRIC TECHNOLOGIES CO., Ltd	E0126-05-02 , E0269-01-01, E0534-0-01, E0732-03-02, E5802-01-01, E0851-01-01, E0854-01-01	V-0 ,130°C	UL	
Internal wire	DONGGUAN WENCHANG ELECTROIC CO.,LTD	1618	16AWG,105°C	UL.	
Contacto	TIANSHUI	GSZ2-600SI/24V	600A/24V	VDE	

Appendix 1

Photo view of EUT

Photo 1

View:



Photo 2

View:



Photo 3

View:



Photo 4

View:



Photo 5

View:



Photo 6

View:



Photo 7

View:

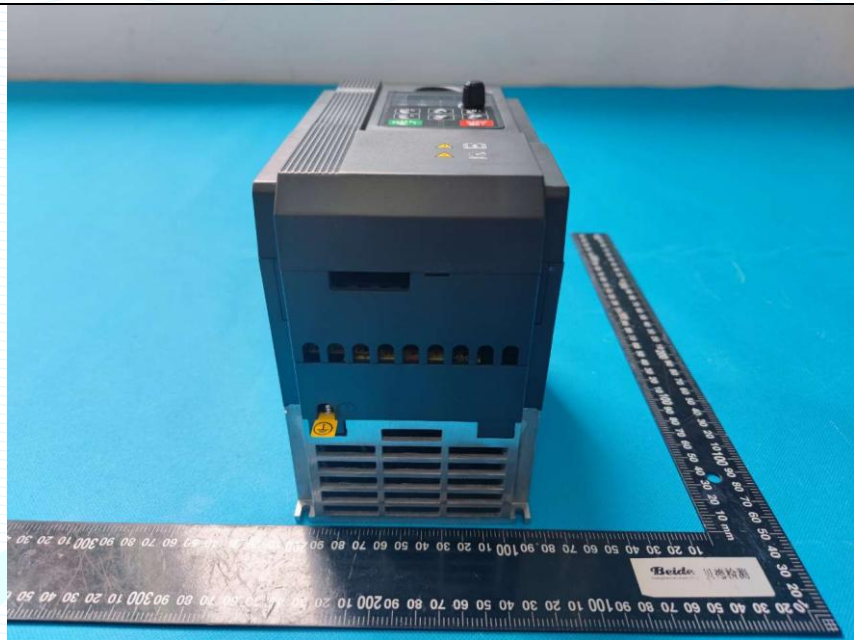


Photo 8

View:



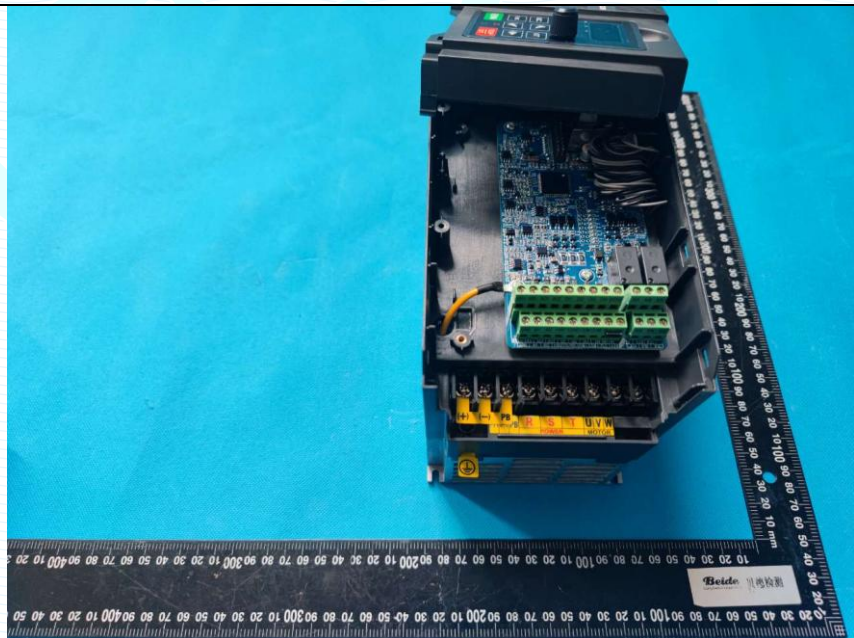
Photo 9

View:



Photo 10

View:

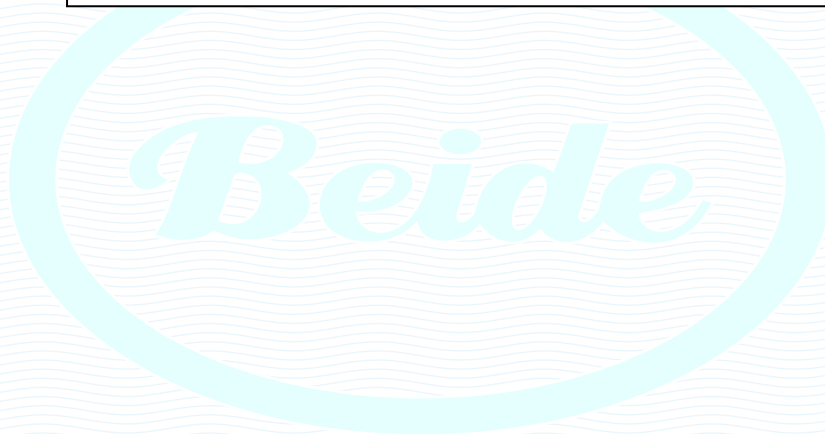


Appendix 2

Product marking of EUT

Inverter
Model No.: FR500(A)-4T-5.5G/7.5PB
Input: 380V~,50/60Hz,5.5kW

Frecon Electric (Shenzhen) Co.,Ltd.
Second Floor,No.3 Zhenbao Industrial Zone,No.137 Shiyan
Road,Shiyan Street,Bao'An District,Shenzhen,China
MADE IN CHINA



Appendix 3

Model list

FR500(C)-4T-030B,FR500(C)-4T-037B,FR500(C)-4T-045B,FR500(C)-4T-055B,
FR500(C)-4T-075B,FR500(C)-4T-090B,FR500-4T-0.7G/1.5PB-H,
FR500-4T-1.5G/2.2PB-H,FR500-4T-2.2GB-H,FR500-4T-2.2G/4.0PB-H,
FR500-4T-4.0GB-H,FR500(A)-4T-4.0G/5.5PB-H,FR500(A)-4T-5.5G/7.5PB-H,
FR500(A)-4T-7.5GB-H,FR500(A)-4T-7.5G/011PB-H,FR500(A)-4T-011G/015PB-H,
FR500(A)-4T-015G/018PB-H,FR500(A)-4T-018G/022PB-H,
FR500(A)-4T-022G/030PB-H,FR500(A)-4T-030G/037PB-H,FR500(A)-4T-037GB-H,
FR500(A)-4T-037G/045P(B)-H,FR500(A)-4T-045G/055P(B)-H,
FR500(A)-4T-055G/075P(B)-H,FR500(A)-4T-075G/090P(B)-H,
FR500(A)-4T-090G/110P(B)-H,FR500(A)-4T-110G/132P-H,
FR500(A)-4T-132G/160P-H,FR500(A)-4T-160G/185P-H,FR500(A)-4T-185G/200P-H,
FR500(A)-4T-200G/220P-H,FR500(A)-4T-220G/250P-H,FR500(A)-4T-250G/280P-H,
FR500(A)-4T-280G/315P-H,FR500(A)-4T-315G/355P-H,FR500(A)-4T-355G/400P-H,
FR500(A)-4T-400G/450P-H,FR500(A)-4T-450G-H,FR500(A)-4T-450G/500P-H,
FR500(A)-4T-500G/560P-H,FR500(A)-4T-560G/630P-H,FR500(A)-4T-630G/710P-H,
FR500(A)-4T-710G/800P-H,FR500(A)-4T-800G-H,FR510(D)-4T-0.7B-H,
FR510(D)-4T-1.5B-H,FR510(D)-4T-2.2B-H,FR510(D)-4T-4.0B-H,
FR510(D)-4T-5.5B-H,FR510(D)-4T-7.5B-H,FR510(D)-4T-011B-H,
FR510(D)-4T-015B-H,FR510(D)-4T-018B-H,FR510(D)-4T-022B-H,
FR510(D)-4T-030B-H,FR510(D)-4T-037(B)-H,FR510(D)-4T-045(B)-H,
FR510(D)-4T-055(B)-H,FR510(D)-4T-075(B)-H,FR510(D)-4T-090(B)-H,
FR510(D)-4T-110-H,FR510(D)-4T-132-H,FR510(D)-4T-110-H,FR510(D)-4T-132-H,
FR510(D)-4T-110-H,FR510(D)-4T-132-H,FR510(D)-4T-160-H,FR510(D)-4T-185-H,
FR510(D)-4T-200-H,FR510(D)-4T-220-H,FR510(D)-4T-250-H,FR510(D)-4T-280-H,
FR510(D)-4T-315-H,FR510(D)-4T-355-H,FR510(D)-4T-400-H,FR150A-2S-0.4B-H,
FR150A-2S-0.7B-H,FR150A-2S-1.5B-H,FR150A-2S-2.2B-H,FR150A-4T-0.7B-H,
FR150A-4T-1.5B-H,FR150A-4T-2.2B-H,FR150A-4T-4.0B-H,FR150A-4T-5.5B-H,
FR150A-4T-7.5B-H,FR150A-4T-011B-H,FR150A-4T-015B-H,FR150A-4T-018B-H,
FR150A-4T-022B-H,FR150A-4T-030B-H,FR150A-4T-037(B)-H,FR150A-4T-045(B)-H,
FR150A-4T-055(B)-H,FR150A-4T-075(B)-H,FR150A-4T-090(B)-H,
FR150A-4T-110-H,FR150A-4T-132-H,FR150A-4T-160-H,FR150A-4T-185-H,
FR150A-4T-200-H,FR150A-4T-220-H,FR150A-4T-250-H,FR150A-4T-280-H,
FR150A-4T-315-H,FR150A-4T-355-H,FR150A-4T-400-H,FR150A-4T-450-H,