TECHNICAL CONSTRUCTION FILE
EN 61010-1:2010+A1:2019
Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements

Report Reference No. .....:	TLZJ21100834016
Reviewed by (name and signature) ..... :	Stephen Zhang / Reviewing Engineer
Approved by (name and signature) . :	Cosco Yu / Technical Manager
Date of issue ..... :	October 11,2021
Reviewing Laboratory ..... :	Shanghai Global Testing Services Co., Ltd.
Address ..... :	Floor 2nd, Building D-1, No. 128, Shenfu Road, Minhang District, Shanghai, China.
Applicant's name ..... :	Changcheng Electrical Group Zhejiang Technology Co., Ltd.
Address ..... :	DianHou Village, Liushi Town,Yueqing City, Zhejiang, P.R. China
Manufacturer's name ..... :	Changcheng Electrical Group Zhejiang Technology Co., Ltd.
Address ..... :	DianHou Village, Liushi Town,Yueqing City, Zhejiang, P.R. China
Factory's name ..... :	Same as Manufacturer
Address ..... :	Same as Manufacturer
Review specification:	
Standard ..... :	EN 61010-1:2010+A1:2019
Review procedure ..... :	CE
Non-standard Review method ..... :	N/A
TCF Form No. ..... :	IEC61010_C
TRF Originator ..... :	VDE
Master TRF ..... :	Dated 2011-09
TCF item description ..... :	Automatic Voltage Stabilizer
Trademark ..... :	/
Model/Type reference ..... :	SBW, SVC, TSD, AVR
Main Model ..... :	SVC-3000VA
Rating(s) ..... :	Input Voltage:150-250V; Output Voltage:220V±3%; Isolation Class:B

TCF item particulars:	
Type of item Reviewed……..:	Commission Review
Description of equipment function…….:	/
Installation/overvoltage category……...:	I
Pollution degree……...:	/
Environmental rating……..:	/
Equipment mobility……..:	mobile
Connection to mains supply……..	/
Operating conditions……..:	/
Overall size of the equipment (L x W x H)…..:	/
Mass of the equipment (kg)……..:	/
Marked degree of protection to IEC 60529…:	/
Accessories and detachable parts included in the evaluation……...:	N/A
Review case verdicts:	
Review case does not apply to the Review object…..:	N/A
Review object does meet the requirement…….:	P(Pass)
Review object does not meet the requirement….:	F(Fail)
Reviewing:	
Date of receipt of Review item…….:	September 30, 2021
Date (s) of performance of Reviews……:	September 30, 2021 to October 11,2021

General remarks:

This report shall not be reproduced, except in full, without the written approval of the issuing Reviewing laboratory.
The Review results presented in this report relate only to the item(s) Reviewed.
"(see remark #)" refers to a remark appended to the report.
"(see Annex #)" refers to an annex appended to the report.
"(see Form A.#)" refers to a table appended to the report.
Throughout this report a point is used as the decimal separator.

This Review report include the following page(s):

Annex I: Photo Documentation, 2 pages

Copy of marking plate:


Summary of Review results (information/comments):
All Review comply with the EN 61010-1:2010+A1:2019 and IEC61010 standard including all European Group National Deviations.
General Product Description:
Automatic Voltage Stabilizer Model: SVC-3000VA Changcheng Electrical Group Zhejiang Technology Co., Ltd.

5	MARKING AND DOCUMENTATION		—
5.1.1	General		—
	Required equipment markings are:		P
	visible:		P
	From the exterior; or		P
	After removing a cover; or		N/A
	Opening a door		N/A
	After removal from a rack or panel		N/A
	Not put on parts which can be removed by an OPERATOR	No operator removable parts.	P
	Letter symbols (IEC 60027) used		P
	Graphic symbols (IEC 61010-1: Table 1) used		P
5.1.2	Identification		—
	Equipment is identified by:		—
5.1.2a)	Manufacturer’s or supplier’s name or trademark	Changcheng Electrical Group Zhejiang Technology Co., Ltd.	P
5.1.2b)	Model number, name or other means	SVC-3000VA	P
	Manufacturing location identified		N/A
5.1.3	Mains supply		—
	Equipment is marked as follows:		—
5.1.3a)	Nature of supply:		—
	1) a.c. RATED mains frequency or range of frequencies ..... :		P
	2) d.c. with symbol 1		N
5.1.3b)	RATED supply voltage(s) or range ..... :		P
5.1.3c)	Max. RATED power (W or VA) or input current .... :		P
	The measured value not more than 110 %		P
	If more than one voltage range:		—
	Separate values marked; or		P
	Values differ by less than 20 %		P
5.1.3d)	OPERATOR-set for different RATED supply voltages:		—
	Indicates the equipment set voltage		P
	PORTABLE EQUIPMENT indication is visible from the exterior		P
	Changing the setting changes the indication		P
5.1.3e)	Accessory mains socket-outlets accepting standard mains plugs are marked:	None provided.	—
	With the voltage if it is different from the mains supply voltage ..... :		N/A

	For use only with specific equipment		N/A
	If not marked for specific equipment it is marked with:		—
	The maximum RATED current or power; or		N/A
	Symbol 14 with full details in the documentation		N/A
5.1.4	Fuses		—
	OPERATOR replaceable fuse marking (see also 5.4.5) ..... :	No operator replaceable fuse.	N/A
5.1.5	TERMINALS, connections and operating devices		—
	Where necessary for safety, indication of purpose of TERMINALS, connectors, controls and indicators marked		N
	If insufficient space, symbol 14 used		N/A
5.1.5.1	TERMINALS	Not connected to mains.	N/A
	Mains supply TERMINALS identified	Not connected to mains.	N/A
	Other TERMINAL marking ..... :		N/A
5.1.5.1a)	FUNCTIONAL EARTH TERMINALS (symbol 5 used)	Used on the input terminal block.	P
5.1.5.1b)	PROTECTIVE CONDUCTOR TERMINALS:		—
	Symbol 6 is placed close to or on the TERMINAL; OR		P
	Part of appliance inlet		P
5.1.5.1c)	TERMINALS of measuring and control circuits (symbol 7 used)		P
5.1.5.1d)	HAZARDOUS LIVE TERMINALS supplied from the interior	None.	—
	Standard MAINS socket outlet; or		P
	RATINGS marked; or		P
	Symbol 14 used		P
5.1.5.1e)	ACCESSIBLE FUNCTIONAL EARTH TERMINALS:	None.	—
	Self-evident; or		N/A
	Indication (symbol 8 acceptable)		N/A
5.1.5.2	Measuring circuit TERMINALS	None.	—
	For TERMINALS other than those permanently connected and not ACCESSIBLE:		—
	RATED voltage or current marked		N/A
	Unless clear indication that below limits:		—
	Maximum RATED voltage to earth is marked; or		N/A
	For specific connection to other equipment TERMINALS only, and means for identifying provided		N/A
	Appropriate measurement category marked (CAT II, CAT III or CAT IV); or		N/A

	No measurement category marked (CAT I)		N/A
	Required markings are adjacent to TERMINALS; OR		N/A
	If insufficient space:		—
	On the RATING plate or scale plate; or		N/A
	TERMINAL is marked with symbol 14		N/A
5.1.6	Switches and circuit breakers		—
	If disconnecting device, on or off position marked		P
5.1.7	Equipment protected by DOUBLE INSULATION or REINFORCED INSULATION		—
	Protected throughout (symbol 11 used)		N/A
	Only partially protected (symbol 11 not used)		N/A
5.1.8	Field-wiring TERMINAL boxes	None.	—
	If TERMINAL or ENCLOSURE exceeds 60 °C:		—
	Cable temperature RATING marked		N/A
	Marking visible or beside TERMINAL		N/A
5.2	Warning markings	None required or provided.	—
	Visible when ready for NORMAL USE		N/A
	Are near or on applicable parts		N/A
	Symbols and text correct dimensions and colour		N/A
	If necessary marked with symbol 14	Not required or provided.	N/A
	Statement to isolate or disconnect		N/A
5.3	Durability of markings		—
	The required markings remain clear and legible in NORMAL USE		N
5.4	Documentation		—
5.4.1	General		—
	Equipment is accompanied by documentation which includes:		—
5.4.1a)	Intended use		P
5.4.1b)	Technical specification		P
5.4.1c)	Instructions for use		P
5.4.1d)	Name and address of manufacturer or supplier		P
5.4.1e)	Information specified in 5.4.2 to 5.4.5		—
5.4.1f)	If marking of TERMINALS required, definition of measurement category		N/A
5.4.1g)	If CAT 1:		—
	Warning		N/A
	RATINGS		N/A
	Warning statements and a clear explanation of warning symbols:		—
	Provided in the documentation; or		N/A
	Information is marked on the equipment		N/A
5.4.2	Equipment RATINGS		—

	Documentation includes:		—
5.4.2a)	Supply voltage or voltage range		P
	Frequency or frequency range		N
	Power or current RATING		P
5.4.2b)	Description of all input and output connections		P
5.4.2c)	RATING of insulation of external circuits, when such circuits are nowhere ACCESSIBLE		P
5.4.2d)	Statement of the range of environmental conditions		P
5.4.2e)	Degree of protection (IEC 60529)	Not protected per IEC 60529.	N/A
5.4.3	Equipment installation		—
	Documentation includes instructions for:		—
5.4.3a)	Assembly, location and mounting	Provided.	P
5.4.3b)	Protective earthing	None.	N/A
5.4.3c)	Connections to supply	Provided.	P
5.4.3d)	PERMANENTLY CONNECTED EQUIPMENT:	Not permanently connected.	—
	1) Supply wiring requirements		N/A
	2) If external switch or circuit-breaker, requirements and location recommendation		N/A
5.4.3e)	Ventilation requirements	Precautions provided for rack mounting.	P
5.4.3f)	Special services (e. g. air, cooling liquid)	None.	N/A
5.4.3g)	Maximum sound power level	Not required.	N/A
5.4.3h)	Instructions about sound pressure		N/A
5.4.3i)	Permanently connected measuring TERMINALS:	None.	—
	Measurement category		N/A
	RATED MAXIMUM WORKING VOLTAGE or current		N/A
5.4.4	Equipment operation		—
	Instructions for use include:		—
5.4.4a)	Identification of operating controls		P
5.4.4b)	Positioning for disconnection		P
5.4.4c)	Interconnection		P
5.4.4d)	Specification of intermittent operation limits		N/A
5.4.4e)	Explanation of symbols used		P
5.4.4f)	Replacement of consumable materials		N
5.4.4g)	Cleaning and decontamination (see 11.2)		P
5.4.4h)	Listing of any poisonous or injurious gases and quantities	None used or produced.	N/A
5.4.4i)	Risk-reduction procedures relating to flammable liquids	None used.	N/A
	A statement about protection impairment if used		N/A

	in a manner not specified by the manufacturer		
5.4.5	Equipment maintenance	No maintenance other than factory service.	—
	Instructions include:		—
	Sufficient preventive maintenance and inspection information		N/A
	Replacement of hoses, etc.	None.	N/A
	Specific battery type		N/A
	Any manufacturer specified parts		N/A
	RATING and characteristics of fuses		N/A
6	PROTECTION AGAINST ELECTRIC SHOCK		—
6.1	General		—
6.1.1	Requirements		—
	ACCESSIBLE parts not HAZADOUS LIVE in NORMAL CONDITION and SINGLE FAULT CONDITION		P
	Conformity is checked by the determination of 6.2 and 6.3 followed by the Reviews of 6.4 to 6.11		—
6.1.2	Exceptions	No exceptions.	—
	Capacitance Review		N/A
	Parts not HAZARDOUS LIVE 10 s after interruption of supply		N/A
6.2	Determination of ACCESSIBLE parts		—
6.2.1	General examination		P
6.2.2	Openings above parts that are HAZARDOUS LIVE	None.	N/A
6.2.3	Openings for pre-set controls	None.	N/A
6.3	Permissible limits for ACCESSIBLE parts		—
6.3.1	Values in NORMAL CONDITION		P
6.3.2	Values in SINGLE FAULT CONDITION		P
6.4	Protection in NORMAL CONDITION (see 6.2, 6.3.1, 6.7, 6.8 and 8.1)		P
6.5	Protection in SINGLE FAULT CONDITION		—
	Additional protection is provided by:		—
	One or more of 6.5.1 to 6.5.3; or		P
	Automatic disconnection of the supply (6.5.4)		N/A
6.5.1	Protective BONDING		P
	ACCESSIBLE conductive parts:		P
	Separated by DOUBLE INSULATION or REINFORCED INSULATION; or		P
	Bonded to the PROTECTIVE CONDUCTOR TERMINAL; or		P
	Separated by screen or BARRIER bonded to		P

	PROTECTIVE CONDUCTOR TERMINAL from parts which are HAZARDOUS LIVE		
6.5.1.1	Integrity of PROTECTIVE BONDING		P
6.5.1.1a)	PROTECTIVE BONDING consists of directly connected structural parts or discrete conductors or both; and withstands thermal and dynamic stresses		P
6.5.1.1b)	Soldered connections:		—
	Independently secured		P
	Not used for other purposes		P
	Screw connections are secured		P
6.5.1.1c)	PROTECTIVE BONDING not interrupted		P
6.5.1.1d)	Any moveable connection specifically designed, and meets 6.5.1.3		P
6.5.1.1e)	No external metal braid of cables used		P
6.5.1.1f)	If MAINS supply passes through:		—
	Means provided for passing protective conductor;		P
	Impedance meets 6.5.1.3.		P
6.5.1.1g)	Protective conductors bare or insulated, if insulated, green/yellow		P
	Exceptions:		—
	1) earthing braids;		P
	2) internal protective conductors etc.;		P
	Green/yellow not used for other purposes		P
6.5.1.1h)	TERMINAL suitable, and meets 6.5.1.2		N/A
6.5.1.2	PROTECTIVE CONDUCTOR TERMINAL	None.	—
6.5.1.2a)	Contact surfaces are metal		N/A
6.5.1.2b)	Appliance inlet used		N/A
6.5.1.2c)	For rewireable cords and PERMANENTLY CONNECTED EQUIPMENT, PROTECTIVE CONDUCTOR TERMINAL is		N/A
	close to MAINS supply TERMINALS		
6.5.1.2d)	If no MAINS supply is required, any PROTECTIVE		—
	CONDUCTOR TERMINAL:		
	Is near TERMINALS of circuit for which protective earthing is necessary		N/A
	External if other TERMINALS external		N/A
6.5.1.2e)	Equivalent current-carrying capacity to MAINS supply TERMINALS		N/A
6.5.1.2e)	Equivalent current-carrying capacity to MAINS supply TERMINALS		N/A
6.5.1.2f)	If plug-in, makes first and breaks last		N/A
6.5.1.2g)	If also used for other bonding purposes, protective conductor:		—

	Applied first;		N/A
	Secured independently;		N/A
	Unlikely to be removed by servicing; or		N/A
	Warning marking requires replacement of protective conductor		N/A
6.5.1.2h)	Protective conductor of measuring circuit:	None.	N/A
	1) Current RATING;		N/A
	2) PROTECTIVE BONDING:		—
	Not interrupted; or		N/A
	Indirect bonding used (see 6.5.1.5)		N/A
6.5.1.2i)	FUNCTIONAL EARTH TERMINALS allow independent connection		P
6.5.1.2j)	If a binding screw:	Not such equipment.	—
	Suitable size for bond wire		N/A
	Not smaller than M 4 (No. 6)		N/A
	At least 3 turns of screw engaged		N/A
	Contact pressure not capable of reduction by deformation of materials		N/A
	Passes tightening torque Review		N/A
6.5.1.3	Impedance of PROTECTIVE BONDING of plug-connected equipment		N/A
6.5.1.4	Bonding impedance of PERMANENTLY CONNECTED EQUIPMENT		N/A
6.5.1.5	Indirect bonding for measuring and Review equipment		N/A
6.5.2	DOUBLE INSULATION and REINFORCED INSULATION (see 6.7, 6.8 and 6.9.2)		—
6.5.3	PROTECTIVE IMPEDANCE		N/A
6.5.3a)	HIGH-INTEGRITY single component used (s. 14.6); or		N/A
6.5.3b)	A combination of components used; or		N/A
6.5.3c)	A combination of BASIC INSULATION and current- or voltage-limiting device used		N/A
	Components, wires and connections are RATED as required		N/A
6.5.4	Automatic disconnection of the supply	Not used.	N/A
	If used, it meets :		—
6.5.4a)	Supplied with the equipment; or		N/A
	Specified by installation instruction		N/A
6.5.4b)	RATED disconnecting time within limit specified		N/A
6.5.4c)	RATED for maximum RATED LOAD		N/A
6.6	Connections to external circuits		—
6.6.1	General		—

	Connections do not cause ACCESSIBLE parts of the following to become HAZARDOUS LIVE in NORMAL CONDITION or SINGLE FAULT CONDITION:		—
6.6.1a)	The external circuits		P
6.6.1b)	The equipment		P
	Separation of circuits provided; or		P
	Short circuit of separation does not cause a Hazard		N/A
	Instructions or markings include:		—
	1) RATED conditions for TERMINAL		N/A
	2) Required RATING of external circuit insulation		N/A
6.6.2	TERMINALS for external circuits		—
	TERMINALS which receive a charge from an internal capacitor are not HAZARDOUS LIVE		N/A
	High voltage TERMINALS energized from the interior are:	No such terminals.	—
	Not ACCESSIBLE if connected; or		N/A
	Unmated HAZARDOUS LIVE TERMINALS not ACCESSIBLE ; or		N/A
	marked with symbol 12		N/A
6.6.3	Circuits with TERMINALS which are HAZARDOUS LIVE	No such terminals.	—
	These circuits are:		—
	Not connected to ACCESSIBLE conductive parts; or		N/A
	Connected to ACCESSIBLE conductive parts, but are not MAINS CIRCUITS and have one TERMINAL contact at earth potential		N/A
	No ACCESSIBLE conductive parts are HAZARDOUS LIVE		N/A
6.6.4	ACCESSIBLE TERMINALS for stranded conductors	No such terminals.	—
6.6.4a)	No risk of accidental contact because:		—
	Located or shielded		N/A
	Self-evident or marked whether connected to ACCESSIBLE conductive parts		N/A
6.6.4b)	ACCESSIBLE TERMINALS will not work loose	Standard I/O connectors used.	P
6.7	CLEARANCES and CREEPAGE DISTANCES		P
6.8	Procedure for dielectric strength Reviews		P
6.9	Constructional requirements for protection against electric shock		—
6.9.1	General		—
	If a failure could cause a HAZARD:		—

6.9.1a)	Security of wiring connections		N/A
6.9.1b)	Screws securing removable covers		N/A
6.9.1c)	Accidental loosening		N/A
	Easily damaged materials not used		N/A
	Non-impregnated hydroscopic materials not used		N/A
6.9.2	ENCLOSURES of equipment with DOUBLE INSULATION or REINFORCED INSULATION		—
	ENCLOSURE surrounds all metal parts except for small metal parts which are separated		N/A
	ENCLOSURES or parts made of insulating material		N/A
	Protection for metal ENCLOSURES or parts by:		—
6.9.2a)	An insulating coating or BARRIER on the inside; or		N/A
6.9.2b)	CLEARANCES and CREEPAGE DISTANCES cannot be reduced by loosening of parts or wires		N/A
6.9.3	Over-range indication		—
	Unambiguous		N/A
6.10	Connection to MAINS supply source and connections between parts of equipment		—
6.10.1	MAINS supply cords	Not connected to mains.	—
6.10.1a)	RATED for maximum equipment current (see 5.1.3c)	Not connected to mains.	N/A
	Cable complies with IEC 60227 or IEC 60245		N/A
6.10.1b)	Heat-resistant if likely to contact hot parts		N/A
6.10.1c)	Temperature RATING (cord and inlet)		N/A
6.10.1b)	Heat-resistant if likely to contact hot parts		N/A
6.10.1c)	Temperature RATING (cord and inlet)		N/A
6.10.1d)	Green/yellow used only for connection to PROTECTIVE CONDUCTOR TERMINALS		N/A
	Detachable cords with IEC 60320 MAINS connectors:		—
	Conform to IEC 60799; or		N/A
	Have the current RATING of the MAINS connector		N/A
6.10.2	Fitting of non-detachable MAINS supply cords		—
	Non-detachable cord protection:		—
6.10.2a)	Inlet or bushing smoothly rounded; or		N/A
6.10.2b)	Insulated cord guard protruding ⩾5D		N/A
	The protective earth conductor is the last to take the strain		N/A
6.10.2	Cord anchorages:		—
6.10.2a)	Cord is not clamped by direct pressure from a screw		N/A
6.10.2b)	Knots are not used		N/A

6.10.2c)	Cannot push the cord into the equipment to cause a hazard		N/A
6.10.2d)	No failure of cord insulation in anchorage with metal parts		N/A
6.10.2e)	compression bushing:		—
	1) Clamps all types and sizes of MAINS cords; and		N/A
	2) Is suitable:		—
	For connection to TERMINALS provided; or		N/A
	It is designed for screened MAINS cord		N/A
6.10.2f)	Cord replacement does not cause a HAZARD and method of strain relief is clear		N/A
	Push-pull Review		N/A
6.10.3	Plugs and connectors		—
6.10.3a)	MAINS supply plugs, connectors etc., conform with relevant specifications		N/A
6.10.3b)	If equipment supplied at voltages below 6.3.2.a) or from a sole source:		—
	Plugs of supply cords do not fit MAINS sockets above RATED supply voltage		N/A
	Plugs of supply cords do not fit MAINS sockets above RATED supply voltage		N/A
	MAINS-type plugs used only for connection to MAINS supply		N/A
610.3c)	Plug pins which receive a charge from an internal capacitor	No such construction	N/A
6.10.3d)	Accessory MAINS socket outlets:	None.	—
	1) Marking if accepts a standard MAINS plug (see 5.1.3e)		N/A
	2) Input has a protective earth conductor if outlet has earth TERMINAL contact		N/A
6.11	Disconnection from supply source		—
6.11.1	General		—
	Disconnects all current carrying conductors		P
6.11.1.1	Exceptions		—
6.11.1.1a)	Equipment supplied by low energy source; or		N/A
6.11.1.1b)	Equipment connected to impedance protected supply; or		N/A
6.11.1.1c)	Equipment constitutes an impedance protected load		N/A
6.11.2	Requirements according to type of equipment		—
6.11.2.1	PERMANENTLY CONNECTED EQUIPMENT and multi-phase equipment	Not such equipment type.	—
	Employs switch or circuit-breaker		N/A
	If switch or circuit-breaker is not part of the		—

	equipment, documentation specifies:		
6.11.2.1a)	Switch or circuit-breaker to be included in building installation		N/A
6.11.2.1b)	Location		N/A
6.11.2.1c)	Marking		N/A
6.11.2.2	Single-phase cord-connected equipment	Not such equipment type.	—
	Equipment is provided with:		—
6.11.2.2a)	Switch or circuit-breaker; or		N/A
6.11.2.2b)	Appliance coupler (disconnectable without TOOL); or		N/A
6.11.2.2c)	Separable plug (without locking device)		N/A
6.11.2.3	HAZARDS arising from function	Function does not give rise to any hazard.	—
	Emergency switch		N/A
	Emergency switch ≤ 1 m from the moving part		N/A
6.11.3	Disconnecting devices		—
	Electrically close to the supply	Not provided as an integral part of the equipment.	N/A
6.11.3.1	Switches and circuit-breakers	Power on/off switch is not considered as the main disconnect device, however, it meets the requirements.	—
	When used as disconnection device:		—
	Meets IEC 60947-1 and IEC 60947-3		P
	Marked to indicate function		P
	Not incorporated in MAINS cord		P
	Does not interrupt protective earth conductor		N/A
	If has other contacts meets separation requirements of 6.6 and 6.7		N/A
6.11.3.2	Appliance couplers and plugs	None.	—
	Where an appliance coupler or separable plug is used as the disconnecting device (see 6.11.2.2):		—
	Readily identifiable and easily reached by the OPERATOR		N/A
	Single-phase PORTABLE EQUIPMENT cord length ≤ 3 m		N/A
	Protective earth conductor connected first and disconnected last		N/A
7	PROTECTION AGAINST MECHANICAL HAZARDS		—
7.1	General		—
	Conformity is checked by 7.2 to 7.6		P
7.2	Moving parts		—
	Moving parts not able to crush, etc. (see also		P

	6.11.2.3)		
	If OPERATOR access permitted:	Not permitted.	—
7.2a)	Access requires TOOL		N/A
2b)	Statement about training		N/A
7.2c)	Warning markings or symbol 14		N/A
7.3	Stability		—
	Marking of non-automatic means		N/A
	Conformity Reviews:		—
7.3a)	10° tilt Review	Complies.	P
7.3b)	multi-directional force Review		N/A
7.3c)	downward force Review		N/A
7.4	Provisions for lifting and carrying	None provided.	—
	Handles or grips withstand four times weight		N/A
	Equipment >18 kg :		—
	Has means for lifting or carrying; or		N/A
	Directions in documentation		N/A
7.5	Wall mounting		—
	Mounting brackets withstand four times weight		P
7.6	Expelled parts		—
	Equipment contains or limits the energy		P
	Protection not removable without the aid of a TOOL		P
8	MECHANICAL RESISTANCE TO SHOCK AND IMPACT		—
	After the Reviews of 8.1 to 8.2:		—
	Voltage Reviews		N/A
	Inspections:		—
	8a) HAZARDOUS LIVE parts not accessible		P
	8b) ENCLOSURE shows no cracks (hazard)		P
	8c) CLEARANCES not less than their permitted values		P
	8d) BARRIERS not damaged or loosened		P
	8e) No moving parts exposed, except permitted by 7.2		P
	8f) No damage which could cause spread of fire		P
9	PROTECTION AGAINST THE SPREAD OF FIRE		—
	Conformity for each source of HAZARD or area of the equipment is checked by one of the following:		—
9a)	Fault Review of 4.4; or		N/A
9b)	Application of 9.1 (eliminating or reducing the sources of ignition); or		N/A
9a)	Fault Review of 4.4; or		N/A

9b)	Application of 9.1 (eliminating or reducing the sources of ignition); or		N/A
9c)	Application of 9.2 (containment of fire within the equipment)	Complies; fire enclosure provided.	P
9.1	Eliminating or reducing the sources of ignition within the equipment		—
9.1a)	1) Limited-energy circuit (see 9.3); or		N/A
	2) Insulation meets the requirements for BASIC INSULATION; OR		N/A
	Bridging the insulation does not cause ignition		N/A
9.1b)	Surface temperature of liquids and parts (see 9.4.a)		N/A
9.1c)	No ignition in circuits designed to produce heat		N/A
9.2	Containment of the fire within the equipment, should it occur		—
9.2a)	Energizing of the equipment is controlled by an OPERATOR held switch		N/A
9.2b)	Enclosure is conform with constructional requirements of 9.2.1; and		P
	Requirements of 9.4b) or c) are met		N/A
9.2.1	Constructional requirements		—
9.2.1a)	Insulated wires have flammability classification FV1 or better		P
	Connectors and insulating material have flammability classification FV2 or better		P
9.2.1b)	The enclosure is constructed as follows :		—
	1) Bottom constructed with:		—
	No openings; or		P
	Extent as specified in figure 7; or		N/A
	Baffles as specified in figure 6; or		N/A
	Perforated as specified in Table 12; or		N/A
	Metal screen with a mesh		N/A
	2) Sides have no openings as specified in figure 7		P
	3) Material of ENCLOSURE and any baffle or flame barrier is made of:		—
	Metal (except magnesium); or		P
	Non metallic materials have flammability classification FV1 or better		N/A
	4) ENCLOSURE and any baffle or flame barrier have adequate rigidity		P
9.3	Limited-energy circuit		—
9.3a)	Potential not more than 30 r.m.s. and 42.4 V peak, or 60 V dc		N/A
9.3b)	Current limited by one of following means:		—

	1) Inherently or by impedance; or		N/A
	2) Overcurrent protective device; or		N/A
	3) A regulating network limits also in SINGLE FAULT CONDITION		N/A
9.3c)	Is separated by at least BASIC INSULATION		N/A
	If overcurrent protective device used:		—
	Fuse or a non adjustable electromechanical device		N/A
9.4	Requirements for equipment containing or using flammable liquids	Not containing or using flammable liquids.	N/A
	Flammable liquids contained in or specified for use with equipment do not cause spread of fire		N/A
	Risk is reduced to a tolerable level :		—
9.4a)	The temperature of surface or parts in contact with flammable liquids is 25 °C below fire point		N/A
9.4b)	The quantity of liquid is limited		N/A
9.4c)	Flames are contained within the equipment		N/A
	Detailed instructions for risk-reduction provided		N/A
9.5	Overcurrent protection	Not powered by mains.	N/A
	Devices not in the protective conductor		N/A
	Fuses or single-pole circuit-breakers not fitted in neutral (multi-phase)		N/A
9.5.1	PERMANENTLY CONNECTED EQUIPMENT	Not permanently connected.	N/A
	Overcurrent device:		—
	Fitted within the equipment; or		N/A
	Specified in manufacturer's instructions		N/A
9.5.2	Other equipment		P
	Protection within the equipment		P
10	EQUIPMENT TEMPERATURE LIMITS AND RESISTANCE TO HEAT		—
10.1	Surface temperature limits for protection against burns		—
	Easily touched surfaces within the limits		P
	Heated surfaces necessary for functional reasons exceeding specified values:		—
	Are recognizable as such by appearance or function; or		N/A
	Are marked with symbol 13		N/A
	Guards are not removable without TOOL		N/A
10.2	Temperatures of windings		N/A
	Limits not exceeded in:		—
	NORMAL CONDITION		N/A
	SINGLE FAULT CONDITION		N/A

10.3	Other temperature measurements		P
	Following measurements conducted if applicable:		—
10.3a)	Value of 60 °C of field-wiring TERMINAL box not exceeded		N/A
10.3b)	Surface of flammable liquids and parts in contact with this liquids		N/A
10.3c)	Surface of non-metallic ENCLOSURES		N/A
10.3d)	Parts made of insulating material supporting parts connected to MAINS supply		N/A
10.3e)	TERMINALS carrying a current more than 0.5 A		N/A
10.4	Conduct of temperature Review		P
10.5	Resistance to heat		P
10.5.1	Integrity of CLEARANCE and CREEPAGE DISTANCES		P
10.5.2	Non-metallic ENCLOSURES		P
	After treatment:		-
	No HAZARDOUS LIVE parts ACCESSIBLE;		P
	Reviews of 8.1 and 8.2		-
	In case of doubt, Reviews of 6.8 (without humidity preconditioning)		N/A
10.5.3	Insulating material		N/A
10.5.3a)	Parts supporting parts connected to MAINS supply	No such construction	N/A
10.5.3b)	TERMINALS carrying a current more than 0.5 A	No such construction	N/A
	Examination of material data; or		N/A
	in case of doubt::		—
	1) Ball pressure Review; or		N/A
	2) Vicat softening Review of ISO 306		N/A
11	PROTECTION AGAINST HAZARDS FROM FLUIDS		—
11.1	General		N/A
11.2	Cleaning		N/A
11.3	Spillage		N/A
11.4	Overflow		N/A
11.5	Battery electrolyte		—
	Battery electrolyte leakage presents no hazard		N/A
11.6	Specially protected equipment		N/A
11.7	Fluid pressure and leakage		—
11.7.1	Maximum pressure		—
	Maximum pressure of any part does not exceed PRATED		N/A
11.7.2	Leakage and rupture at high pressure		N/A
	Review to IEC 60335 (refrigeration only)		N/A
11.7.3	Leakage from low-pressure parts		N/A

11.7.4	Overpressure safety device		—
	Does not operate in NORMAL USE		N/A
	Meets ISO 4126-1; and		N/A
	It is conform with:		—
11.7.4a)	Connected as close as possible to parts intended to be protected		N/A
11.7.4b)	Easy access for inspection, maintenance and repair		N/A
11.7.4c)	Adjustment only with TOOL		N/A
11.7.4d)	No discharge towards person		N/A
11.7.4e)	No HAZARD from deposit of discharged material		N/A
11.7.4f)	Adequate discharge capacity		N/A
11.7.4g)	No shut-off valve between overpressure safety device and protected parts		N/A
12	PROTECTION AGAINST RADIATION,		—
	INCLUDING LASER SOURCES, AND AGAINST		-
	SONIC AND ULTRASONIC PRESSURE		-
12.1	General		—
	Equipment provides protection		N/A
12.2	Equipment producing ionising radiation		N/A
12.2.1	Ionising radiation		N/A
12.2.2	Accelerated electrons		N/A
12.3	Ultra-violet (UV) radiation	(Conformity Review under consideration)	—
	No unintentional and HAZARDOUS escape of UV radiation		N/A
12.4	Micro-wave radiation		—
	Power density does not exceed 10 W/m^2..... :		N/A
12.5	Sonic and ultrasonic pressure		—
12.5.1	Sound level		N/A
12.5.2	Ultrasonic pressure		N/A
12.6	Laser sources (IEC 60825-1)	No laser source	N/A
13	PROTECTION AGAINST LIBERATED GASES,		—
	EXPLOSION AND IMPLOSION		
13.1	Poisonous and injurious gases	None produced.	N/A
	Attached data/Review reports demonstrate conformity		N/A
13.2	Explosion and implosion		—
13.2.1	Components		—
	Components liable to explode:	None.	—
	Pressure release device provided; or		N/A
	Apparatus incorporates OPERATOR protection (see also 7.6)		N/A

	Pressure release device:		—
	Discharge without danger		N/A
	Cannot be obstructed		N/A
13.2.2	Batteries and battery charging		—
	If explosion or fire hazard could occur:		—
	Protection incorporated in the equipment; or		P
	Instructions specify batteries with built-in protection		N/A
	In case of wrong type of battery used:		—
	No HAZARD; or		N/A
	Warning by marking and within instructions	Not required.	N/A
	Equipment with means to charge rechargeable batteries:	No battery used	N/A
	Warning against the charging of non-rechargeable batteries; and	No battery used	N/A
	Type of rechargeable battery indicated; or		N/A
	Symbol 14 used		N/A
	Battery compartment design	The enclosure provides adequate ventilation.	P
	Single component failure	Not required.	N/A
	Polarity reversal Review	Not possible.	N/A
13.2.3	Implosion of cathode ray tubes	No CRT.	—
	If maximum face dimensions > 160 mm ..... :		—
	Intrinsically protected and correctly mounted; or		N/A
	ENCLOSURE provides protection:		N/A
	If non-intrinsically protected:		—
	Screen not removable without TOOL		N/A
	If glass screen, not in contact with surface of tube		N/A
13.2.4	Equipment RATED for high pressure (See 11.7)	Not such equipment.	N/A

14	COMPONENTS		P
14.1	General		P
	Where safety is involved, components meet relevant requirements	(see Table 3)	P
14.2	Motors	None.	—
14.2.1	Motor temperatures		—
	Does not present a HAZARD when stopped or prevented form starting; or		N/A
	Protected by overtemperature or thermal protection device conform with 14.3		N/A
14.2.2	Series excitation motors		—
	Connected direct to device, if overspeeding causes a HAZARD		N/A

14.3	Overtemperature protection devices	None relied upon for safety.	N/A
	Devices operating in a SINGLE FAULT CONDITION		N/A
14.3a)	Reliable function is ensured		N/A
14.3b)	RATED to interrupt maximum current and voltage		N/A
14.3c)	Does not operate in NORMAL USE		N/A
14.4	Fuse holders	None.	N/A
	No access to HAZARDOUS LIVE parts		N/A
14.5	Mains voltage selecting devices	None.	N/A
	Accidental change not possible		N/A
14.6	HIGH INTEGRITY components	None.	N/A
	Used in applicable positions (see Table 3)		N/A
	Conforms with IEC publications		N/A
	Single electronic device not used		N/A
14.7	Mains transformers Reviewed outside equipment		N/A
14.8	Printed circuit boards		N/A
	Data shows conformity with FV-1 of IEC 60707 or better; or	No PCB used	N/A
	Review shows conformity with FV-1 of IEC 60707 or better; or		N/A
	Thin film flexible PCB with limited-energy circuit used		N/A
14.9	Circuits or components used as transient overvoltage limiting devices	None.	—
	After Review, no sign of overload or degradation		N/A
15	PROTECTION BY INTERLOCKS	None.	—
15.1	General		—
	Interlocks are designed to remove a hazard before OPERATOR exposed		N/A
15.2	Prevention of reactivation		N/A
15.3	Reliability		—
	Single fault unlikely to occur; or		N/A
	Cannot cause a HAZARD		N/A
16	Review AND MEASUREMENT EQUIPMENT	Not such equipment.	N/A
16.1	Current measuring circuits		N/A
16.2	Multifunction meters and similar equipment		N/A
	No HAZARD from:		—
	RATED input voltage combinations		N/A
	Settings of functions		N/A
	Settings of range controls		N/A
17	**RISK assessment**		-
	if examination of the equipment shows that HAZARDS not fully addressed in Clauses 6 to 16		P

	(see 1.2.1) might arise, then RISK assessment is required.		
	It shall be carried out and documented to achieve at least a TOLERABLE RISK by an iterative process covering the following.		P
	a) RISK analysis		-
	RISK analysis is the process to identify HAZARDS and to estimate the RISKS based on the use of available information.		P
	b) RISK evaluation		-
	Each RISK analysis requires a plan to evaluate the estimated severity and likelihood of a RISK, and to judge the acceptability of the resulting RISK level.		P
	c) RISK reduction		-
	If the initial RISK level is not acceptable, steps shall be taken to reduce the RISK.		P
	The process of RISK analysis and RISK evaluation shall then be repeated, including checking that no new RISKS have been introduced.		P
	RISKS remaining after a RISK assessment shall be identified in the instructions for the RESPONSIBLE BODY. Adequate information about how to mitigate these RISKS shall be given (see 5.4.1 e)).		P
	In selecting the most appropriate methods of RISK reduction, the manufacturer shall apply the following principles, in the order given:		P
	1) eliminate or reduce RISKS as far as possible (an inherently safe design and construction);		P
	2) take the necessary protective measures in relation to RISKS that cannot be eliminated;		P
	3) inform users of the residual RISKS due to any shortcomings of the protective measures adopted, indicate whether any particular training is required, and specify any need to provide personal protective equipment.		P
	NOTE One RISK assessment procedure is outlined in Annex J. Other RISK assessment procedures are contained in ISO 14971, SEMI S10-1296, IEC 61508, ISO 14121-1, and ANSI B11.TR3. Other established procedures which implement similar steps can also be used.		P

ANNEX F	ROUTINE Reviews	Terminal block are required routine Review	P

	Manufacturer's declaration		P

4.4.2	TABLE: Summary of SINGLE FAULT CONDITIONS		—

Sub clause	Title	Does not apply	Carried out	Comments
4.4.2.1	PROTECTIVE IMPEDANCE	X		
4.4.2.2	Protective conductor	X		
4.4.2.3	Equipment or parts for short-term or intermittent operation	X		
4.4.2.4	Motors	X		
4.4.2.5	Capacitors	X		
4.4.2.6	Mains transformers	X		
4.4.2.7	Outputs		X	Terminal
4.4.2.8	Equipment for more than one supply	X		
4.4.2.9	Cooling – air holes closed – fans stopped – coolant stopped		X X	No filters; no fan
4.4.2.10	Heating devices – timer overridden	X		
	– temperature controller overridden – loss of cooling liquid – overfilled or empty or both			
4.4.2.11	Insulation between circuits and parts	X		
4.4.2.12	Interlocks	X		
List below all SINGLE FAULT CONDITIONS not covered by 4.4.2.1 to 4.4.2.12:				
Supplementary information:				

4.4	TABLE: Reviewing in single FAULT CONDITION – Results				-
Review sub clause	Fault No.	Fault description	Td 4.4.3 (NOTE)	How was Review terminated Comments	Meets 4.4.4

NOTE Td = Review duration in h:min:s

Record dielectric strength Review on Related Form and temperature Reviews on Related Form .

Record in the comments column for each Review whether carried out during or after SINGLE FAULT CONDITION.

Comments:

5.1.3c)	**TABLE: Mains supply**		-
	Marked rating..... :		—
	Phase ..... :		—
	Frequency ..... :		—
	Current ..... :	--	—
	Power ..... :	--	—
	Power ..... :	--	—

Review No.	Voltage V	Frequency Hz	Current mA	Power in W	Power in VA	Comments

Note: Measurements are only required for marked ratings.

Supplementary information

All measurements taken for reference only.

5.3	**TABLE: Durability of markings**	**P**

Marking method (see NOTE)	Agent	
1) Silkscreened (main part)	A	Water
2) rating of AC/DC adaptor	B	Isopropyl alcohol
3)	C	(specify agent)
4)	D	(specify agent)
5)	E	(specify agent)

NOTE – Where applicable include print method, label material, ink or paint type, fixing method, adhesive and surface to which marking is fixed.

Marking location	Marking method (see above)
Identification (5.1.2)	1
Mains supply (5.1.3)	
Fuses (5.1.4)	
TERMINALS and operating devices (5.1.5.1)	
Measuring circuit TERMINALS (5.1.5.2)	
Switches and circuit breakers (5.1.6)	1
DOUBLE/REINFORCED equipment (5.1.7)	
Field wiring TERMINAL boxes (5.1.8)	
Warning marking (5.2)	1

Battery charging (13.2.2)					
Method	Review agent	Remains legible Verdict	Label loose Verdict	Curled edges Verdict	Comments
1	B	P	N/A	N/A	

6	TABLE: Protection against electric shock - Block diagram of system Form A. 5								P
Pollution degree ..... : 2				Installation category (overvoltage category) ..... :I					
Location or description	Insulation type (NOTE 1)	Maximum working voltage (NOTE 2)		CREEPAGE DISTANCE (NOTE 3)		CLEARANCE (NOTE 3)		Review voltage (NOTE 2)	Comments
			PWB mm	CTI	Other mm	CTI	mm	V	

NOTE 1 – Type of insulation:	NOTE 2 - Types of voltage	NOTE 3 -INSTALLATION CATEGORIES (OVERVOLTAGE CATEGORIES)
BI = BASIC INSULATION	Peak impulse Review voltage (pulse)	or POLLUTION DEGREES which differ from
DI = DOUBLE INSULATION	r.m.s.	these should be shown under "Comments".
PI = PROTECTIVE IMPEDANCE	d.c.	
RI = Reinforced INSULATION	peak	
SI = Supplementary INSULATION		

Supplementary Information:
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6.2	TABLE: List of ACCESSIBLE parts		N

6.1.2	Exceptions	None	—
6.2	Determination of accessible parts	Review pin and Review finger	—
Item	Description	Determination method (NOTE 5)	Exception under 6.1.2 (NOTE 4)
1	Enclosure of body	inspection	
2	Terminal block	inspection	
3	Enclosure opening	inspection	
4	Display Panel	inspection	

NOTE 1 – Review fingers and pins are to be applied without force unless a force is specified (see 6.2.1) Special consideration

NOTE 2 – should be given to inadequate insulation and high voltage parts (see 6.2) Parts are considered to be

NOTE 3 – ACCESSIBLE if they could be touched in the absence of any covering which is not considered to provide suitable

NOTE 4 – insulation (see note to paragraph 1 of 6.4). Capacitor Review may be required. The determination

NOTE 5 – methods are: visual; rigid Review finger; jointed Review finger; pin 3 mm diameter; pin 4 mm diameter.

Supplementary information

6	TABLE: Values in NORMAL CONDITION		N/A
6.1.1	Exceptions	11.2 Cleaning and decontamination	—
6.3.1	Values in NORMAL CONDITION (see NOTE 1)	11.3 Spillage	—
6.6.2	Terminals for external circuit	11.4 Overflow	—
6.10.3	Plugs and connections		—

Item	Voltage		Current			Capacitance		10 s Review (NOTE 2)				Comments
	V	V	V	Review	mA	mA	mA						
	r.m.s	peak	d.c.	circuit A1/A2/A3	r.m.s	peak	d.c	μC	mJ	V	μC	mJ	
1	--	--	--	--	--	--	--	--	--	--	--	--	
2	--	--	--	--	--	--	--	--	--	--	--	--	
3	--	--	--	--	--	--	--	--	--	--	--	--	
4	--	--	--	--	--	--	--	--	--	--	--	--	
5	--	--	--	--	--	--	--	--	--	--	--	--	
6	--	--	--	--	--	--	--	--	--	--	--	--	
7	--	--	--	--	--	--	--	--	--	--	--	--	

NOTE 1 – The requirements of 6.3.1 include drying out (if specified). For permanently connected equipment, the current values are 1,5
times the specified values.
NOTE 2 – A 5 s Review is specified in 6.10.3c).

6.3.2	TABLE: Values in SINGLE FAULT CONDITION											N/A
Item	Sub clause and	Voltage			Transient (see NOTE)		Current				Capacitance	
(See Form	fault No. (see FormA.2)	V r.m.s	V .peak	V d.c.	V	s	Test A1/A2/A3	mA r.m.s	mA peak	mA d.c.	µF (NOTE)	Comments
1	--	--	--	--	--	--	--	--	--	--	--	
2	--	--	--	--	--	--	--	--	--	--	--	
3	--	--	--	--	--	--	--	--	--	--	--	
4	--	--	--	--	--	--	--	--	--	--	--	
5	--	--	--	--	--	--	--	--	--	--	--	
6	--	--	--	--	--	--	--	--	--	--	--	
7	--	--	--	--	--	--	--	--	--	--	--	

NOTE – Transient voltages must be below the limits given from Figure 1 and the capacitance below the limits from figure 2 of IEC 61010-1.
Comments: The worst case fault would be a fault shorting the Vdc input to an accessible part.
The maximum rated input voltage is 12 Vdc. There are no step-up regulators in the internal circuits.
Therefore, this Review is deemed to comply without Reviewing.

6.5.1.1	TABLE: Cross-sectional area of bonding conductors	N/A
Conductor location	Cross-sectional area mm^2	Verdict

6.5.1.2	TABLE: Tighting torque Review		
Conductor location	Size of Screw	Tighting torque Nm	Verdict

6.5.1.3	TABLE: Bonding impedance of plug connected equipment			N/A
ACCESSIBLE part under Review	Review Current A	Voltage attained after 1 min V	Calculated resistance (maximum allowed 0,1 Ω) Ω	Verdict
Supplementary information:				

6.5.1.4	TABLE: Bonding impedance of PERMANENTLY CONNECTED EQUIPMENT		N/A
ACCESSIBLE part under Review	Review current A	Voltage attained after 1 min (maximum 10 V) V	Verdict
Supplementary information:			

6.5.1.5	TABLE: Indirect bonding for measuring and Review equipment	N/A

ACCESSIBLE part under Review	Voltage Attained S	Time for voltage to drop to allowable levels s	Verdict
a) Voltage limiting device	—	—	—
Supplementary Information:			

ACCESSIBLE part under Review	Voltage applied V	Time for device to trip s	Verdict
b) Voltage-sensitive tripping device			
Supplementary Information:			

6.5.3	TABLE: PROTECTIVE IMPEDANCE	N/A

A high INTEGRITY single component		
Component	Location	Comments

A combination of components		
Component	Location	Comments

A combination of BASIC INSULATION and a current or voltage limiting device		
Component	Location	Comments

Supplementary information:

6.8	TABLE: Dielectric strength Reviews		P
4.4.4.1 b)	Conformity after application of fault conditions1		
6.4	Protection in NORMAL CONDITION		
6.5.2	DOUBLE INSULATION and REINFORCED INSULATION		
6.6.1	Connections to external circuits		
6.7.3.1 c)	CLEARANCE values – General: reduced CLEARANCES for homogeneous construction		
6.10.2.5)	Fitting of non-detachable MAINS SUPPLY cords1		
8	Mechanical resistance to shock and impact		
9.1 a) 2)	Eliminating or reducing the sources of ignition within the equipment		
9.3 c)	Limited-energy circuit		
11.2	Cleaning1		
11.3	Spillage1		
11.4	Overflow1		
11.6	Specially protected equipment1		

6.10.2	TABLE: Cord anchorage					N/A
Location	Mass kg	Pull N	Verdict	Torque Nm	Verdict	Comment
Supplementary information:						

9.2.1	TABLE: Constructional requirements	N
14.8	Printed circuit boards	

Material Reviewed ..... :	PCB	—
Generic name..... :	Single layer printed wiring boards.	—
Material manufacturer ..... :	N/A	—
Type ..... :	-	—
Colour ..... :	Green	—
Conditioning details ..... :	RH: 50%; 25°C; 24hrs;	—

		Sample 1	Sample 2	Sample 3
Thickness of specimen	mm			
Duration of flaming after first Application	s			
Duration of flaming plus glowing After second application	s			
Specimen burns to holding clamp	Yes/No			
Cotton ignited	Yes/No			
Sample result	Pass/Fail			

Supplementary information:

9.3	TABLE: Limited-energy circuit		N/A

Item	9.3 a)	9.3 b) Current and power limitation			9.3 c)	Decision	
Or Location	Maximum potential in circuit voltage r.m.s./ d.c. V	Maximum available current A	Maximum available power VA	Overload protection after 120 s A	Circuit separation	Yes/No	Comments

Supplementary information:

9.4	TABLE: Requirements for equipment containing or using flammable liquids		N/A
Type of liquid	9.4 Flammable liquids		Verdict
	b) quantity	c) Containment	
Supplementary information:			

- End of Review Report -

Type of equipment, model: Automatic Voltage Stabilizer,
SBW, SVC, TSD, AVR

Details of:

View:

[X] general

[ ] front

[ ] rear

[ ] right

[ ] left

[ ] top

[ ] bottom

Details of:

View:

[X] general

[ ] front

[ ] rear

[ ] right

[ ] left

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[ ] bottom

Details of:

View:

[X] general

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Details of:

View:

[X] general

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- End of Annex I -

INSTRUCTION MANUAL

AUTOMATIC VOLTAGE REGULATOR

Please do read the instruction
Manual carefully before using

OPERATING INSTRUCTIONS

1.IMPORTANT: Before plugging AVR into the power source,check whether the scope of the input voltage is correct or not.

2.Plug AVR power cord into selected power source 220V

3.Plug appliance into selected voltage output plug on AVR 220V

4.Turn power switch of AVR on first,and then turn appliance power switch on,(NOTE: When turning appliance on,always turn AVR on first,then appliance).

5.When turning appliance off,always turn appliance power switch off first,then turn AVR power switch off.

FUSE OPERATION

1.If AVR fuse should blow out,turn appliance power switch off first. then turn AVR power switch off,check that all connections are properly made.

2.Replace blown out AVR fuse with same type and rating fuse only.

PRECAUTIONS

1.The voltage of network input must confirm to the demand of AVR, for optimum operation.

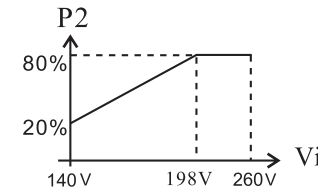
2.Connect all plugs securely.

3.Always turn AVR power switch on first,then turn appliance power switch on.(Failure to do so may cause AVR fuse to blow).

4.For best results,do not use if over load condition exists.

5.Do not use in overly humid of flammable surroundings;avoid contact with any liquids.

6.The relationship between the output capacity and input voltage: picturel,long time overload is forbidden.



Vi—input voltage

P2—output capacity

FUNCTION

1.Supply constant voltage with electricity.
2.TV & computer in stable and clear picture.
3.Extend life of appliance.
4.Avoid damage of appliance due to unstable input voltage.

APPLIANCE

*Computer
*TV & Radio
*Audio-cassette
*Audio Equipment
*Cash Register
*Light Equipment
*Alarm Systems
*Communication

SPECIFICATIONS

MODEL	INPUT VOLTAGE	OUTPUT VOLTAGE	PHASE	FREQUENCY
500VA	140-260V	220V±10%	SINGLE	50/60Hz
1000VA	140-260V	220V±10%	SINGLE	50/60Hz
1500VA	140-260V	220V±10%	SINGLE	50/60Hz
2000VA	140-260V	220V±10%	SINGLE	50/60Hz
3000VA	140-260V	220V±10%	SINGLE	50/60Hz
5000VA	140-260V	220V±10%	SINGLE	50/60Hz
8000VA	140-260V	220V±10%	SINGLE	50/60Hz
10000VA	140-260V	220V±10%	SINGLE	50/60Hz
12000VA	140-260V	220V±10%	SINGLE	50/60Hz