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User's and Installer's Manual Betriebs-und Montageanleitung Manuel d'utilisation et de montage Manual de utilización y instalación

Steca AJ 275 - 2400

Sine Wave Inverter



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English description

Introduction

The sine wave inverters of the AJ series have been designed to meet industrial and domestic needs. They meet the highest requirements of comfort, safety and reliability. Any device designed for the public electrical network of 230 V 50 Hz can be connected to them (up to the nominal power of the inverter). The AJ series is the perfect source of voltage

in any place where the public network is not available.

This document is an essential part of the inverter and must always be carried with it and be at the disposition of anyone working on the installation.

Should you have any doubt or question, do not hesitate to contact your specialist salesperson who will give you the best advice.

Warning

A deficient assembly could result in damage to the device, cause function failures or potential damage to the users.

The working device generates a high voltage which might be lethal in case of contact. So, any manipulation of the inverter must be carried out with utmost care.

THE OWNER MUST NOT MANIPULATE ANY PIECE INSIDE THE INVERTER.

Opening the inverter or using it incorrectly will result in the immediate loss of the warranty. No current or tension generating device (public grid, generator,...) may be connected to the outlet of the inverter because this could result in its destruction.

The inverter AJ is to be used only with a lead battery. As for the use of batteries, follow the manufacturer's instructions.

Installation

The AJ sine wave inverter is an electronic device, for which some caution must be taken when installing it:

Place where the inverter is to be installed:

Out of reach of unauthorised persons, specially children.

In a dry place (max. 95% humidity), and in any case with no condensation.

Not directly on top of the batteries.

Ventilation must be free, and a space of 10 cm. on each side is needed for good evacuation of the internal heat.

No easily inflammable material should be placed directly underneath or close to the AJ

Fitting the inverter

The inverter is fitted on a non flammable surface by screws (max. 4mm for AJ 275-AJ 1300 or max. 8mm for AJ 2100 and 2400) using the four holes provided. The fitting screws are not supplied with the inverter. It may be fit into any position.



Connection

The connection of the inverter should be done with utmost care. First connect the consumer devices so as to prevent any further contact once the 230 V voltage is present. The technical data and connection's description is either under one side of the inverter or onto the cable connection side. Installation is to be made only by authorised persons.

Connecting the consumer devices

The AJ inverter is supplied with a 230 V cable for the consumer devices. This connection must be done observing the colours:

Yellow-green: earth

Brown: phase

Blue: neutral

Once the consumer devices are connected, make sure that they are turned off before connecting the battery

Note

An Inverter constitutes an independent power supply from the grid and could be considered in the same way as a generator set. The phase and the neutral are not differentiated. The voltage in between the phase and the neutral is 230V. An appropriate divisor establishes a 115V voltage in between neutral and earth, and the phase and earth. According to the local prescriptions or particular requirement, (example: use of a ground fault detector) a true neutral may be established by connecting the neutral and the earth wire together. The so connected point, may be connected with an existing earth: earth of building; the chassis of vehicle or the hull of ship.

Equivalent schema





Connecting the battery

Once the consumer devices are connected, make sure that the installations instructions of the 230V has been followed with utmost care **before connecting the battery**.

The cable of the battery is supplied with the inverter and already connected in it.

A fuse must be installed on the battery.

Connect the battery observing carefully the polarity.

The AJ inverter, **except AJ 2100-12**, is protected against inversion reverse polarity by a fuse, but if the polarity should be inverted, the inverter must be sent to the manufacturer for control.

Connect the battery using the following colours:

BLACK cable: negative pole (-) RED cable: positive pole (+) For AJ 275-400, dominant colour is applicable When connecting the battery, there is a spark (**Danger of explosion!**), because of the charging of the internal filtering capacitors. **Check that the cables are well adjusted** and well tightened

and well tightened. As long as it is possible, do not extend the

cables supplied with the batteries. Extending them may increase the losses and cause malfunction of the inverter.

Once the inverter is connected to the batteries, a 230 V voltage is present in the outlet of the inverter.

Use

Control and indicators Control switch on/off

There is a switch on the inverter to activate or deactivate it. Use this function to save the energy of the batteries when you are not using the inverter.

Green indicator

A green light on the inverter indicates its function mode:

Illuminated: a 230 V voltage is present in the outlet, the inverter is on.

Blinking:

_ _ _: No load (stand-by)

____: the 230 V voltage has been cut due to an alarm; the inverter will resume function when the failure has disappeared (see the failure table).

Off: the 230 V voltage is NOT present in the outlet, the inverter is off.

Acoustic indicator

The AJ inverter has an acoustic indicator for the following instances:

Intermittent beep: there is a failure in the inverter and the outlet voltage will be interrupted.

Possible failures:

Overheat: the acoustic indicator beeps 3 °C before cutting the tension. If the temperature

reaches its normal level, the voltage in the outlet is not interrupted.

Low battery voltage: the indicator beeps for a minute before the interruption. If the voltage of the battery rises, the outlet voltage is not interrupted.

Continuous beep for two seconds: you have pressed the ON/OFF switch to restart the inverter. The tension in the outlet will be immediately present after the acoustic signal.

Model with stand-by system

The inverters from the AJ 500-12 are equipped with a stand-by system which is in function when no load is connected. In that situation the inverter is in low power consumption mode.

The output tension is not continuously present and the LED is blinking as long as no load is detected.

The minimal load detected can be adjusted between 1 and 20 W. In most cases this necessary. adiustment is not This adjustment is made with a small screw driver in the hole marked stand-by. This adjustment is made with a small screw driver in the hole marked stand-by. Adjusting the switching-on level is as follows: Switch off all consuming devices; turn the Turning Knob to the Left (counter-clockwise)until the LED is blinking, switch ON the smallest consuming device (i.e. Mobile phone charger); turn the Turning Knob slowly to the right until LED is lit continuously. Check that the inverter will go back in standby mode when you remove the load. If not, this means that the load is too small to be detected.

If the stand-by is not required, turn the Knob fully to the right.

In the full counter clockwise position, the sensibility is minimal (20 W). Do not push on the screw driver.

NOTE: in this mode the output voltage is intermittently present at the output

Safety

The inverter is electronically protected. But protection against polarity inversions of the battery occurs with an internal fuse, **except for AJ 2100-12 inverter, which has no fuse**. The following table will show you the different failures and their consequences.

FAILURE	CONSEQUENCE	SOLUTION		
Low battery voltage Voltage < 1.8V/cell	Inverter momentarily stopped, the green indicator blinks.	Automatic restart when the battery voltage rises		
Deep discharged battery (voltage <1,5V/cell)	Inverter stopped	Inverter should be manually restarted when the battery as reach 2V/cell		
Overheating	Inverter momentarily stopped, the green indicator blinks.	Automatic restart when the temperature reaches the normal range.		
Battery over voltage	Inverter stopped. V	Vait until the battery voltage reaches the correct level. Push the ON/OFF switch to reactivate the inverter		
Short circuit in the outlet	Inverter stopped. E	liminate the short circuit. Push the ON/OFF switch to reactivate the inverter.		
Overload	Inverter stopped.	Use the inverter only in the range of its nominal power. Regular use in overload power diminished the lifetime of the inverter. Push the ON/OFF switch to reactivate the inverter.		
Inversion of the battery polarity	Internal fuse broken down	Back to manufacturer for testing		

Maintenance

The inverters of the AJ series do not need any special maintenance. The casing may be cleaned with a damp cloth (not wet). In the case of malfunction, the inverter should be sent back to the manufacturer for control in its original packing. Before sending the inverter, check the table above.

The battery is loaded and is in accordance to the inlet nominal tension of the device.

The consumer devices do not have any defects or overload for the inverter.

Should you contact your salesperson, note the following points before calling:

(you will find this information on the label underneath the inverter)

- Series number
- Power of the inverter
- Inlet nominal voltage of the inverter

Before sending back the inverter, do take care that it is well packed. The inverter must be in a stiff carton box and be well protected on all sides by mean of an antishock and isolating layer of min. 5cm thickness.

The damages occurring during the transport are not covered by the warranty.

Warranty limit

The warranty period is 2 years.

It will be considered void if the unit has suffered any physical damage or alteration, either internally or externally, and does not cover damage arising from improper use like:

- Reverse of battery polarity
- Inadequate input voltage (over voltage)
- Back-feed of the inverter output by public network, generator or any other source.
- Mechanical shock or deformation especially by transport due to an inadequate package.
- Contact with liquid or oxidation by condensation
- Use in inappropriate environment (dust, corrosive vapour, humidity, high temperature,...)

This warranty will not apply where the product has been misused, neglected, improperly installed, or repaired by anyone other than STECA GMBH or a company authorised by STECA GMBH. In order to qualify for the warranty, the product must not be disassembled or modified.

Limits of manufacturer liability

STECA GMBH cannot control the installation, use and maintenance of the inverter. Thus, we are not responsible for damages, costs or losses resulting from an installation which is not in accordance with the regulations or inappropriate use or maintenance.

The customer is always responsible for the use of the inverters STECA GMBH.

This device has not been designed and is not warranted for use in life support apparatus or any other critical device with potential risks of important harm to people or to the environment. We do not accept any responsibility for any violation of patent rights or other third person rights resulting from the use of the inverter.

STECA GMBH keeps the right to modify their products without previous notice.

JT8 Remote control for AJ 1000-2400

Functions on remote control are the same as control and indicator on the inverter (see chapter Use)

Remote control should be connected with the inverter with the original 10m. STECA GMBH cable or any RJ11/6p 1:1 cable up to max 50m.



Technical data

MODEL	AJ 275	AJ 350	AJ 400	AJ 500	AJ 600	AJ 700
Battery voltage (V)	12	24	48	12	24	48
Input voltage (V)	10.5 - 16	21 - 32	1 2 - 64 1	0.5-16 21	- 32 42 -	64
C ontinuous / 30' power (VA)	200/275 3	00/350 3	00/40	400/500	500/60	500/70
			0		0	0
S tand-by / ON @ no load (W)	0.3*/2.4 0.	5*/3.5 1.1	*/5.2 0.4	4/4.6 0.6/	7.2 1.5/	12
Maximum efficiency (%)	93	94	94	93	94	94
Dim. 142 x 84 x L (mm) L=		163		240252		
eight (kg)	2.4	2.6	2.6		4.5	
Remote control plug (RCM-01)		Option			Option	
Load detect. (Stand-by) 1-20 W	W	ith option S			Vyes	

MODEL	AJ 1000	AJ 1300	AJ 2100	AJ 2400	
Battery voltage (V)	12	24	12	24	
Input voltage (V)	10.5 - 16	21 - 32	10.5 - 16	21 - 32	
C ontinuous / 30' power (VA)	800/1000	1000/1300	2000/2100	2000/2400	
S tand-by / ON @ no load (W)	0.7 / 10	1.2 / 13	0.7 /16	1.2/16	
Maximum efficiency (%)	93	94	92	94	
Dim. 142 x 84 x L (mm) L=		428		273 x 399 x 117	
Weight in kg. (approx.)		8.5		18	
Remote control (JT8)	Option		Option		
Load detect. (Stand-by) 1-20 W	yes		yes		

Output voltage	Sine wave 230V 0/-10% (115V 0/-10%)
Frequency	50 Hz +/- 0.05 % (60 Hz +/-0.05%)
Ventilation	From 45° C
Overheating protection	yes
Overload protection	yes
S hort circuit protection	by fuse
P protection index	IP 30 (AJ 2100-2400 = IP 20)
Cos φ	0.1-1
E norm (ECE-R 10)	All models in 12 and 24V are certified

DECLARATION OF CONFORMITY ((
Manufacturer's Name:	STUDER INNOTEC	
Manufacturer's address:	Rue des Casernes 57, CH - 1950 Sion	
Declares that the product:	Sine wave inverter	
Product Name:	AJ series	
Model Number:	AJ 275-12, AJ 350-24, AJ 400-48 AJ 500-12, AJ 600-24, AJ 700-48 AJ 1000-12, AJ 1300-24 AJ 2100-12, AJ 2400-24	
Product options and accessories:	Solar charge controller (S) Remote control JT8 Remote control plug RCM-01	
Comply with the following norms:	 EMC Dir. 89 / 336 / EEC EN 61000-6-1 EN 61000-3-2 EN 55022 EN 55014 EN 50091-2 LVD 73 / 23 / EEC EN 60950-1 	
Roland Studer / Director Full name / position		
	M. Audo	
	Signature	

