

OFFICE UPS

EASY USE FULLY PROTECTION

KOF-330 / 460 / 560 / 660

USER' MANUAL

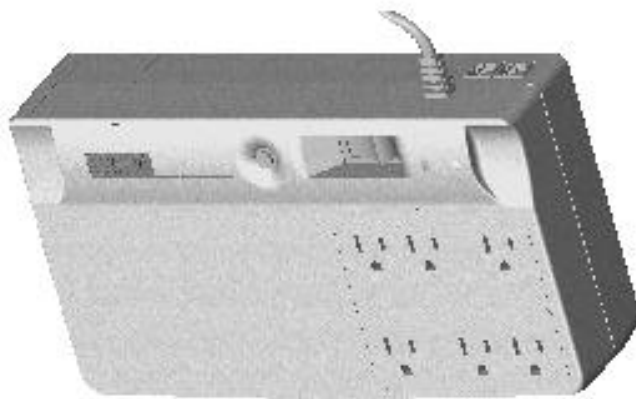


TABLE OF CONTENTS

Safety instructions	1
Description	1
Check power	2
Easy setup	3
How KOF works	4
What the indicators show	5
Replacing battery	5
Wall Mounting	6
Trouble shooting	7
Specifications	7

IMPORTANT SAFETY INSTRUCTIONS (SAVE THESE INSTRUCTIONS)

This manual contains important safety instructions for **KOF** that should be followed during installation and maintenance of **KOF** and its battery. Read this manual thoroughly before attempting to unpack, install or operate **KOF**.

CAUTION! To prevent the risk of fire or electric shock, install in a temperature and humidity controlled indoor area, free of conductive contaminants. (Please see specification for acceptable temperature and humidity range).

CAUTION! To reduce the risk of electric shock, do not remove the cover secured by star shaped screws. No user serviceable parts inside except for battery. Refer servicing to qualified service personnel.

CAUTION! Hazardous live parts inside. **KOF** is energized by the battery even when the input AC power is disconnected.

Plug **KOF** to an AC power outlet with branch protection such as fuse or circuit breaker.

Plugging **KOF** to an unprotected outlet may violate electrical regulation and may result in electrical hazard.

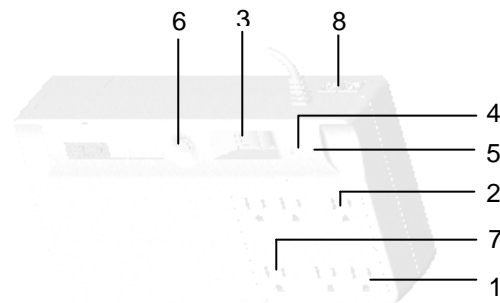
If you need to de-energize **KOF**, switch it off and unplug it. If necessary, disconnect the battery by following the instructions in this manual.

Proper disposal of batteries is required.

CAUTION! Before servicing the battery or installing a computer interface or accessory slot signal cable, switch off and unplug **KOF** to avoid electrical shock.

KOF is not recommended for protection life support equipment if the failure of **KOF** may reasonably be expected to affect the effectiveness of the life support equipment.

DESCRIPTION



1 Battery Power-Supplied Outlets Provide instantaneous back-up power and full-time surge protection to your equipment. Ensure temporary uninterrupted operation of your equipment during power failure.

2 Full-Time Surge Protection Outlets Provides full-time surge protection to your equipment. Avoid surge from traveling through your system through unprotected peripherals.

3 Power Switch Can be used as the master on/off switch of your equipment by leaving your equipment connected to **KOF** and switched on.

4 Power On Indicator This illuminates when utility condition is normal and outlets are powered utility free of surges and spikes.
Battery Usage Indicator This illuminates during utility failure, indicating that the battery is supplying power to the battery Power-Supplied outlets.

5 Check Battery Indicator This illuminates indicating weak battery. Recharge the battery for at least four hours. If after recharging this still illuminates, replace the battery by following the instructions in the manual. (You can plug out then check battery)

6 Circuit Breaker Serves as a circuit overload and fault protection. This is a critical component of the advanced **KOF** surge protection circuit.

7 Outlets Design for AC Adapters Allows two AC power adapter blocks to be plugged into the **KOF** without blocking adjacent outlets.

8 Communications Protection Ports **KOF**'s exclusive communication protection ports will protect any standard modem, PBX System or 10 Base T ethernet connection ports.

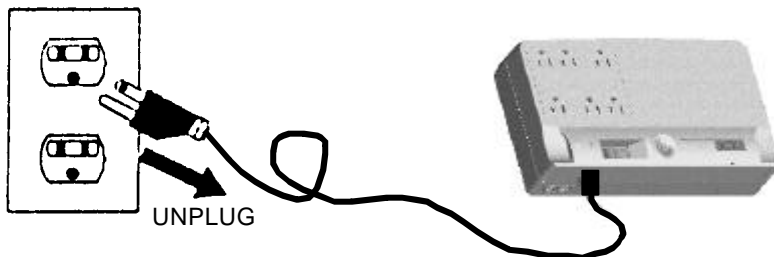
9 Wall Mounting Slots (on Reverse) Allow the unit to be mounted to a wall or other solid structure on two mounting screws.

CHECK THE POWER REQUIREMENT OF YOUR EQUIPMENT

1. Make sure the total power your equipment requires does not exceed 1440VA.

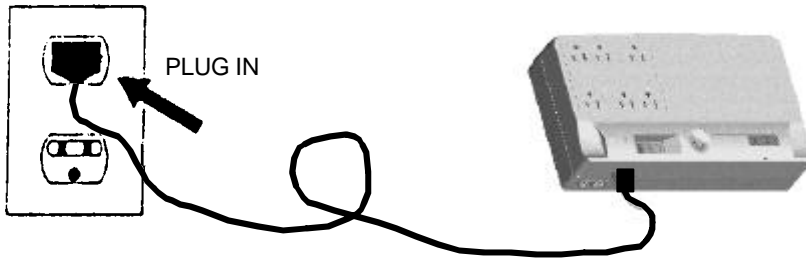
2. Also make sure the equipment you plugged into the Battery Power-Supplied outlets does not require total power exceeding **330VA** for **KOF-330** and **460VA** for **KOF-460** etc. Otherwise, overload may occur and cause the circuit breaker to trip. If the power requirement of your equipment is listed in units other than VA, convert the requirement into VA by doing the calculations below:

3. If the power requirement of your equipment is listed in units other than VA, convert the requirement into VA by doing the calculations below.



_____ Watt(W) x 1.67 = _____ VA or _____ Amps(A) x 120 = _____ VA

EASY SETUP



1. **KOF** may be used immediately upon receipt. The battery is fully charged when shipped from the factory. However, user is recommended to recharge the battery for at least four hours before using **KOF**, as charge loss may occur during shipping or long duration storage. To recharge the battery, simply leave **KOF** plugged into an AC outlet and switched on.

2. Plug your primary equipment (e.g. computer, monitor, and critical data storage device, etc.) to the Battery Power-Supplied outlets. Plug your peripheral equipment (e.g. printer, scanner, fax, or audio device) to the Full-Time Surge Protection outlets. Do not plug laser printer to the **KOF**, as its power demand is much higher than typical peripherals and may cause the circuit breaker to trip.

3. If you wish to protect a fax or a modem, connect the telephone cable from the wall outlet to the "IN" jack. Connect the telephone cable (provided) from the "OUT" jack to the fax or modem. To protect a 10Base-T (UTP) network interface, obtain and use a UTP cable to connect the "OUT" jack to your computer.



4. Plug **KOF** to a 2-pole, 3-wire grounding receptacle. Make sure the branch is protected and does not service equipment requiring heavy electricity (e.g. refrigerator, air conditioner, copier, etc.). Avoid using extension cords; if used, make sure they are rated for at least 15 Amps (A).

5. Switch on your equipment, then switch on **KOF**. **KOF** will conduct a self-test when first switched on. Check Battery and Using Battery indicators will flash while **KOF** checks for battery condition (if battery has sufficient charge) and load situation. Do not add or take off any equipment while **KOF** conducts self-test; wait until the Power indicator lights up.

6. If low battery situation is detected during self-test, and the battery level is too low to sustain the completion of self-test, **KOF** will automatically stop functioning and begin recharging the battery.

7. **KOF** is equipped with AutoRestart feature when the battery level becomes too low to sustain its operation and the utility is not present. **KOF** will switch itself to waiting mode, waiting for utility switch itself on and recharge its battery. If the user is away during a utility failure, **KOF** will manage to return to normal function and recharge its battery when utility power returns.

8. If an overload situation is detected during self-test, **KOF** audible alarm will activate, emit a long beep and automatically shut down the system. Unplug at least one piece of equipment from the Battery Supplied Outlets. Switch off **KOF**, wait 5 seconds and check to make sure the circuit breaker is set then switch on.

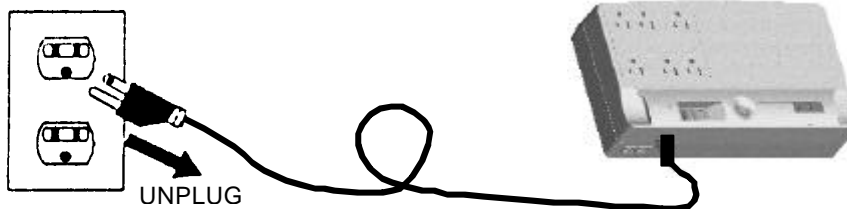
9. To maintain the optimal battery charge, leave **KOF** plugged in and switched on at all time.

10. **KOF** is equipped with a self-protect feature preventing people from playing with the unit to subsequently damaging the unit. It is programmed so that once switched off, the user must wait 5 seconds before switching **KOF** on again.

11. To Store **KOF**, cover it and store it with the battery fully charged. During extended storage, recharge the battery every three months to ensure battery life.

12. In the event a power failure occurs after turning on **KOF**, and prior to the self-test sequence, **KOF** will automatically shut off and will not restart until utility power is restored. This is necessary in order to guarantee the quality of power delivered to your connect equipment.

HOW KOF WORKS



1. It is recommended that the user perform a simulation test when using **KOF** for the first time or when adding an additional piece of equipment. Conduct a simulation-test: first switch on **KOF** and wait for the Power indicator to light up, then simply unplug **KOF** to simulate utility failure.






2. When utility failure occurs, the Battery Power-Supplied outlets immediately supply power to your equipment from its battery and the alarm will beep twice every second, reminding you that your equipment is running on limited power source.

3. Restore the utility by plugging **KOF** back in to the existing power source.

Repeat the test a few times to make sure **KOF** works properly and to find out the expected runtime.

WHAT THE INDICATORS SHOW

EXPECTED RUNTIME


					Condition
LY	LY	Off	Set	Off	Normal
Off	Flash	Off	SET	Beeps/3S	Utility Failure -KOF is providing power to Battery Power-Supplied outlets from its battery.
Off	Rapid Flash	LY		Rapid beeps.	Utility Failure -Same as the above and the battery power will soon run out.
Off	Flash	Up		Beeps/3S or rapid beeps.	Serious Overload - Occurs in Full-Time Surge Protection outlets, unplug at least one equipment from those outlets, switch off KOF, wait 5 seconds, reset the circuit breaker, and then switch it back on.
Off	Off	LY or Off	Set	Long beep	Overload -Occurs in Battery Power-Supplied outlets, unplug at least one piece of equipment from these outlets.
Off	Off	LY or Off	Up	Long beep	Serious Overload - Occurs in Battery Power-Supplied outlets, unplug at least one equipment from the outlets, switch off KOF, wait 5 seconds, reset the circuit breaker, and switch KOF back on.
LY	LY	LY	Set	None	Weak Battery - Recharge the battery for at least four hours, if indicator still illuminates, replace the battery by following the instructions.
Off	Off	LY or Off	Set	Long beep	Short -Occurs in Battery Power Supplied outlets, unplug at least one piece of equipment from these outlets.


Load (VA)	KOF Model Runtime(Minutes)			
	KOF-330	KOF-460	KOF-560	KOF-660
75	27	46	46	68
100	19	33	33	50
150	12	20.5	20.5	30
200	8	14.5	14.5	21.5
250	5.5	10.5	10.5	15.5
300	4	8	8	12.5
350	3	6.5	6.5	10.5
400		5.5	5.5	7.5
460		4	4	6
500			3.5	5.5
560			2.5	3.5
600				2.5
660				2

Actual run time will vary according to system specifications. Runtimes are given in minutes at +25°C (+77°F).

 Line

 INV

 Check Battery

 Circuit Breaker

 Alarm

LY: Light Yellow LR: Light Red

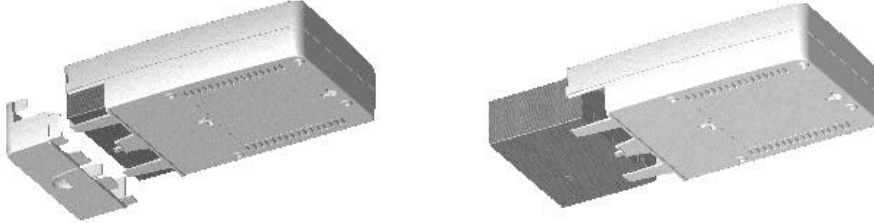
REPLACING THE BATTERY

CAUTION! Read the **IMPORTANT SAFETY INSTRUCTION** before servicing the battery. Service the battery under the supervision of personnel knowledgeable of batteries and their precautions.

CAUTION! Use only the specified type of battery. See your dealer for the replacement battery.

CAUTION! The battery may present risk of electrical shock. Remove metal objects such as watches, rings, etc. when servicing the battery. Use only tools with insulated handle, and do not put tools or metal objects on the battery. Do not dispose the battery in a fire as it may explode. Do not attempt to open or mutilate the battery. Released electrolyte is harmful to the skin and eyes, and may be toxic.

1. Switch off and unplug all the equipment from **KOF**
2. Switch off and unplug **KOF** and turn it upside down.
3. Remove the battery cover.
4. Pull the battery retaining clips outwards and take the battery out.
5. Disconnect the battery and remove the battery.
6. Slide the battery into the compartment.
7. Replace the battery cover.
8. Recharge the new battery for at least four to eight hours to ensure **KOF** performs to its expected runtime.
9. Dispose of the used battery at an appropriate recycling facility.



CAUTION! A battery can present a high risk of high short circuit current. The following precautions should be observed when working on batteries:

1. Remove watches, rings, or other metal objects.
2. Use tools with insulated handles.
3. Do not lay tools or metal parts on top of batteries or any terminals.
4. Wear rubber gloves and boots.
5. Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source of ground.

Contact With any part of a grounded battery can result in electrical shock. The likelihood of such shock will be reduced if such grounds are removed during installation and maintenance (applicable to a UPS and a remote battery supply not having a grounded supply circuit).

CAUTION! Do not open or mutilate the batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

CAUTION! Do not dispose of batteries in a fire. The battery may explode.

CAUTION! Before disassembling **KOF** be sure the master power switch is in the OFF position and power cord is completely disconnected from the AC receptacle to avoid possible shock hazard!

CAUTION! To reduce the risk of fire, connect only to a circuit provided with 15 amperes maximum branch circuit overcurrent protection in accordance with the National Electrical Code, ANSI/NFPA 70.

CAUTION! The output wave form on the **KOF** output for the computer and the monitor is a sine wave approximation suitable for use with modern computer power supplies. Other loads may malfunction or the system could be damaged. In particular, ferroresonant type regulation transformers are not recommended. If in doubt, please consult the **KOF** technical support team.

- Do not use in conjunction with life support equipment.
- Always operate and store in a dry location. Not for use in wet or damp areas.
- Do not operate or store in extreme temperature environments such as indirect sunlight or near heat emitting areas.
- Do not disassemble the system. Internal electronics components are not user serviceable.

WALL MOUNTING

KOF can be mounted horizontally to a wall surface.

1. Position and secure two fasteners to the wall and leave the head of both fasteners 8mm out from the surface of the wall. Fasteners must be able to reliably support 15lbs.
2. Mount **KOF** by positioning the key-hole slots over the fastener heads.

TROUBLE SHOOTING

KOF has a self-protect feature that prevents the unit from being damaged as a result of overheating. If Unit temperature is high (above 55°C), wait for the unit to cool down.

Problems	Possible Cause	Solution
Full-Time Surge Protection outlets stop providing power to the equipment	Circuit breaker button popped up as a result of overload.	Unplug at least one piece of equipment from the Full-Time Surge Protection outlets. Switch off KOF , wait 5 seconds, reset the circuit breaker (press down breaker button), then switch on KOF .
KOF does not perform to its expected runtime.	Battery undercharged or depleted due to frequent power outages.	Recharge the battery by leaving the UPS plugged in and switched on.
	The power required by your equipment slightly exceeds the capacity of the UPS.	Unplug at least one piece of equipment from the UPS outlets.
	The battery is slightly worn-out.	Consider replacing the battery.
KOF cannot be turned on.	Special KOF is designed to prevent damage from flipping.	Switch KOF off, wait for 5 seconds, then switch KOF on.
	The battery is worn-out.	Replace the battery by following the instructions in this manual.
	Mechanical problem.	Contact your sales representative.

SPECIFICATION

Capacity	330VA(198W)	460VA(276W)	560VA(336W)	660VA(396W)
Brownout Voltage Transfer to Battery	98Vac, typical			
Over-voltage Transfer to Battery	132Vac, typical			
On-Battery Output Voltage Regulation	115Vac±5%			
Transfer Time	4 ms typical			
Noise Suppression	Up to 30dB from 150KHZ-30MHZ			
Max. Load for UPS outlets (3 outlets)	330VA(198W)	460VA(276W)	560VA(336W)	660VA(396W)
Max. Load for Full-Time Surge Protection outlets (6 outlets)	12Amps			
Output Wave Form	Simulated Sinewave Form			
Operating Temperature	+32°F to 95°F , 0°C to 35°C			
Operating Relative Humidity	0 to 95% non-condensing			
Size (WxDxH)	268x155x64mm			292x155x64mm
Net Weight	3kg	3.3kg	3.5kg	3.8kg
Typical Battery Recharge Time	8 hours from total discharge			
Typical Battery Life	3 to 6 years, depending on number of discharge cycles and ambient temperature.			
Battery Type	Spill Proof. Maintenance-free, user replaceable, sealed lead-acid.			
Recommended Battery	CSB:HC1217W	CSB:HC1221W	CSB:HC1221W	CSB:HC1228W
Safety Approvals	UL1778(UPS), CUL107.1/FCC/DIC Class B			