

使用说明书 User's Manual



广东易事特电源股份有限公司 GUANGDONG EAST POWER CO., LTD

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1. 产品介绍:

EA890-3/3-(10-400)KVA 型全数字化 UPS, 是广东易事特电源股份有限公司在新世纪的最新产品,集数字化、 信息化、网络化为一体的高智能型产品,具有强大的信息采集系统、信号处理系统、侦测系统和完善的保护系统。广 泛用于各种用电环境、个性化设计、友好的人机对话功能,触摸屏液晶显示器是本公司最新开发的 UPS 显示模块,采 用当今最流行、最直观的图形操作界面。与一般的 LCD 显示模块相比,本触摸屏显示模块没有复杂的操作步骤,用户 直接按显示器上的模拟按钮即可获得相应的信息,操作简单易懂;同时触摸屏显示模块自带实时时钟和存储器,可记 录 256 条事件记录和其他的设置信息。

2. 操作要求:

- ▶ 在使用本产品前请仔细阅读本手册。
- ▶ 本手册必须由专业人员阅读理解并保存。
- ▶ 本手册对具体的技术不作详细解释。
- ▶ 本手册仅适用于 EA890-3/3 型 UPS 系列产品。

本手册应在使用时供参考,在报警或重要工作状态时做指导。

3. 注意事项:

3.1.确保不小于相应功率等级的输入、输出、电池、电缆线。

3.2.必须有可靠的接地装置。

3.3.机内有许多高压储能器件,请勿擅自拆开机箱检查,否则引起的人生安全,后果自负。操作人员也必须懂得 电工基本知识并熟读使用说明书。

3.4.未经许可,不得擅自拆卸各种连接电缆。

3.5.由于本产品体积较大、重量较重,不得随意移动,不得强裂振动,并保持通风良好。

3.6.在带电的情况下,不能去排出尘土;不得用湿的毛巾去擦除污垢。

3.7.电池必须由专业技术人员进行更换,更换出来的电池必须送交特别的循环再造机构处理。电池为"有毒废料"。

3.8.UPS 安装好后长时不使用,所配置的电池会自动放电,同时电池的化学能会自动消耗,根据周围的环境气候 大约在 25 摄氏度,电池每隔三个月必须充电,如果气温大于 30 摄氏度,电池就要每二个月充电一次。充电时只需启 动 UPS,并在正常工作模式下运行最少 24 小时。

4、工作原理:

4.1.EA890-3/3 型 UPS 是高度融合了数字化技术,提高了 MTBF 和可靠性,由独立的一个主控板控制整个系统工作,采用高速微处理器控制,保证设备稳定、可靠运行。



除了上图之外, UPS 的其它组成部分包括: 逆变变压器、输入电感、IGBT、可控硅、开关等。

4.2.标准 UPS 的原理:

维修旁通开关 /_____





4.3.市电逆变原理:

交流电输入经整流器变换成直流滤波后,再通过 SPWM 逆变器逆变出交流电供给输出。



4.3.1.正常逆变模式:

电池已充满, 仅交流整流后供逆变输出供电。



4.3.2.正常逆变,同时给电池充电的工作模式:

电池电压低时,交流经整流后一边充电,一边逆变输出供电。





4.3.3.交流输入故障, 电池工作模式:

交流输入出现故障后,由电池逆变输出供电。



4.3.4.旁路输出工作模式:

有交流输入,但是逆变器已关闭(未工作),同时输出由旁路供电。







5. 前面板介绍:



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(1) LCD 显示------显示各种数据 (2) LED 状态指示-----指示工作状态

(3)输入整流开关-----控制整流输入

- (4)旁路开关-----控制旁路输入
- (5)输出开关-----控制输出
- (6)电池开关-----控制电池输入
- (7)维修旁路开关-----控制交流旁路
- (8)接线排-----连接输入、输出、电池、地线
- (9)RS232 通讯接口

6、安装:

在安装此产品时,请详细阅读"操作说明"部分.

- 6.1.安装环境要求:
- ▶ 温度:0℃~+40℃
- ▶ 相对湿度: 30%~90%
- ▶ 海拔高度: 1000M 以下,超过此高度请降额使用
- ▶ 安装环境尺寸要求 (L×W×H): 2000×2000×2000
- ▶ 地板受力要求: 2000KG/M²

确保安装时有以下的室内环境:

- ▶ 没有灰尘
- > 要有适当的室内气温:UPS 能在 0~40℃的室内环境下操作,但进行开启时的温度要高于 0℃,最理想的操作温度为 25℃.
- ▶ 要有一个良好的散热系统,以下是可行的方法:

A.自然通风系统:只适用于低热量及广大空间.

B.人为通风系统:当机壳温度(TA)高过外围温度(TE)时就需安装空调.当两者温度接近,抽风系统的容量就要相对的增大。

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6.2.安装前检查:

- ▶ 打开包装取出 UPS 时,检查 UPS 在运输过程中有没有受损
- ▶ 开启正门,同时检查清楚所有的开关是断开的,UPS内部应包括:
- ▶ 保修卡
- ▶ 操作手册
- ▶ 装箱清单(见附表)

6.3. 安装位置:

- ▶ 机器背部与墙或任何物件距离应有最少 80cm 的空间
- ▶ UPS 的顶部不可放置任何物件
- ▶ 设备的正前方及上方必需预备充足的检修空间
- ▶ 设备的电池箱必须在机身的右手边预留足够位置作电池检修用
- ▶ 电源线必须从机器的底部接线。

6.4. 接线排连接图:



在 UPS 未安装之前,将所有的开关应断开。

按照上图左 A、B、C、N 接三相输入相线和中线; 按图右 N、A、B、C 接三相输出相线和中线; E 接地线; +、-接 电池的正、负。

6.5.UPS 三相输出系统 10-400KVA 电缆规格:见表 1 (单位:mm²)

☆早			输入				输	出		电	池
谷里	R	S	Т	Ν	Е	R	S	Т	Ν	+	-
8910	6	6	6	6	6	6	6	6	6	10	10
8915	6	6	6	6	6	6	6	6	6	10	10
8920	6	6	6	6	6	6	6	6	6	10	10
8930	10	10	10	10	10	10	10	10	10	20	20
8940	16	16	16	16	16	16	16	16	16	30	30
8950	25	25	25	25	25	25	25	25	25	50	50
8960	25	25	25	25	25	25	25	25	25	50	50
8980	40	40	40	40	40	40	40	40	40	80	80
89100	50	50	50	50	50	50	50	50	50	100	100
89120	60	60	60	60	60	60	60	60	60	120	120
89160	75	75	75	75	75	75	75	75	75	150	150
89200	100	100	100	100	100	100	100	100	100	200	200
89230	100	100	100	100	100	100	100	100	100	200	200
89240	106	106	106	106	106	106	106	106	106	216	216
89260	112	112	112	112	112	112	112	112	112	235	235
89280	121	121	121	121	121	121	121	121	121	253	253
89300	130	130	130	130	130	130	130	130	130	272	272
89330	143	143	143	143	143	143	143	143	143	300	300
89340	148	148	148	148	148	148	148	148	148	308	308
89360	156	156	156	156	156	156	156	156	156	326	326
89380	165	165	165	165	165	165	165	165	165	345	345
89400	173	173	173	173	173	173	173	173	173	363	363

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6.6. 电池连接

- ▶ 打开电池箱的机壳
- ▶ 在相应的位置上安装电池并接好电池连接线。

6.7.接线检查

接上所有输入/输出/电池/电线,检查以下事项:

全部的电池连接线是否连接正确并接触良好,输入、输出、接地线已正确地连接在设备上对应的接线排上,UPS 的输入端电压、频率、相序要与 UPS 的旁路电压、频率、相序一致。

7、技术参数的说明:

(一) UPS 系统技术参数

1. 整流器输入参数 见表 2.1-2.2

型 号	8910	8915	8920	8930	8940	8950	8960	8980	89100	89120	89160	89200
标称容量(KVA)	10	15	20	30	40	50	60	80	100	120	160	200
输入单相最大电 流	25	33	40	55	71	86	102	133	164	195	227	303
工作方式及原理			在线式	弋供电,	静态旁路	各开关(无间断切	刃换),双	Q重转换打	支术。		
相 数						三相	+N+G					
标称电压					200VAC	/380VA0	C(范围	±25%)				
标称频率					50H	łz/60Hz(范围土1	0%)				
电压谐波失真						<	5%					
软启动						0~100	% 5sec					

表 2.1

ⓓ

表 2.	2												
型	号	89220	89230	89240	89260	89280	89300	89320	89330	89340	89360	89380	89400
标称容量	t (KVA)	220	230	240	260	280	300	320	330	340	360	380	400
输入单相 济	目最大电 fi	335	350	365	396	426	458	488	502	518	549	579	609
工作方式	及原理			在线工	弋供电,	静态旁距	各开关(无间断切	刃换),双	Q重转换打	支术。		
相	数						三相	+N+G					
标称	电压					200VAC	C/380VA	C(范围	±25%)				
标称	频率					50Hz	z/60Hz(范围土1	0%)				
电压谐	波失真						<	5%					
软 启	目动						0~100	% 5sec					

表 2.2

2. 整流器输出参数 见表 3.1-3.2

型	号	8910	8915	8920	8930	8940	8950	8960	8980	89100	89120	89160	89200
最高输	出电压	2	220VDC/405VDC 405VDC										
微电脑设	定充电电 航		1A~30A(根据电池容量设置)										
		表 3.1											

					K	5.1						
型 号	89220	89230	89240	89260	89280	89300	89320	89330	89340	89360	89380	89400
最高输出电压	405VDC											
微电脑设定充 电电流	1A~50A(根据电池容量设置)											

表 3.2

(二) 电池 见表 4.	1-4.2											
型 号	8910	8915	8920	8930	8940	8950	8960	8980	89100	89120	89160	89200
最大放电电(A)	28	42	56	85	113	141	169	225	282	338	381	507
电池数量单元	16 † 96 †	28 42 56 85 113 141 169 225 282 338 381 507 16 节/30 节 (12V 串联) 30 节 (12V 串联) 30 节 (12V 串联) 30 节 (12V 串联) 180 节 (2V 串联) 180 节 (2V 串联) 192VDC/360VDC 360VDC 360VDC 360VDC										
标称电池电压	96 节/180 节 (2V 串联) 180 节 (2V 串联) 192VDC/360VDC 360VDC											
浮充电压		13.8V 2.3V	$DC \times 1$	2V 电池 √ 电池节	节数(3 数(3 个	个月电池 ·月电池自	1自动均疗 目动均充-	乏一次,14 一次,2.4 \	0.5 VDC $>$ VDC $\times 2^{V}$	<12V 电 √ 电池节	池节数) ī数)	
充电电流					1A~30)A(根据	电池容量	し 设置)				

表 4.1

表 4.2

型 号	89220	89230	89240	89260	89280	89300	89320	89330	89340	89360	89380	89400		
最大放电电(A)	558	584	610	660	711	762	813	838	863	914	965	1015		
电池数量单元		30 节/12V 串联												
标称电池电压		360VDC												
浮充电压		13.8V 2.3V	$DC \times 12$ $DC \times 2V$	2V 电池节 / 电池节	市数(3/ 数(3 个	个月电池 ·月电池自	自动均充 目动均充-	一次,14. 一次,2.4 \	5VDC× VDC×2V	12V 电注 / 电池节	也节数) 数)			
充电电流		1A~50A(根据电池容量设置)												
					= 1									

表 4.2

B

7.1 逆变技术参数的说明:

(三)逆变器 见表 5.1-5.2

型	号	8910	8915	8920	8930	8940	8950	8960	8980	89100	89120	89160	89200	
额定	功率						标称功	率×0.8						
(KWC	OSφ=0.8						ka: ka: 54	1 010						
相	数						三相-	+N+G						
标称	电压		200	/AC/380	VAC±1	%(稳态	汤载),	200VAC	C/380VA	C±5%	(负载波	(动)		
标称	频率				50H	Iz/60Hz((范围土0	.05%) (电池供可	电)				
频率稳定度	:不同步时						$<\pm 0$	0.05%						
频率稳定度	: 同步时						< ±	=5%						
波峰	因数						3:	1						
输出	波形						正引	玄波						
总谐波	支失真		3:1 正弦波 线性负载<3%;非线性负载<5%											
动态负载	电压瞬变						- 1	50/						
(由0到1	00%跃变)						< 1	5%						
瞬间恢	复时间						<1	0ms						
平衡负	载电压				<:	±1%; <	$<\pm5\%$	(不平衡	负载电压	E)				
过载	能力					12	5% 1min	, 150%	1S					
逆变器效率	,负载100%						>91%	, 95%						

表 51

表 5.2														
型 号	89220	89230	89240	89260	89280	89300	89320	89330	89340	89360	89380	89400		
额定功率					木	示称功率	≦×0.7							
(KWCOS ϕ =0.8														
相 数						三相+N	I+G							
标称电压		200VA	C/380VA	$C\pm 1\%$	(稳态负	负载),2	00VAC/	380VAC	2±5% (负载波z	动)			
标称频率				50Hz/	/60Hz(范	〔围±0.0	5%)(电	且池供电)					
频率稳定度:不同步时	ţ	50Hz/60Hz(范围±0.05%)(电池供电) <±0.05% <±5%												
频率稳定度:同步时		$<\pm 0.05\%$ $<\pm 5\%$ 3: 1												
波峰因数						3:	1							
输出波形						正弦	波							
总谐波失真				线	性负载<	<3%; 非	≡线性负	载<5%						
动态负载电压瞬变						< + 6	.0/							
(由0到100%跃变)						< ± 3	0%0							
瞬间恢复时间						<10r	ns							
平衡负载电压				$<\pm 1$	1%; <:	±5% (7	不平衡负	载电压)					
过载能力					125%	% 1min,	150% 1	S						
逆变器效率,负载 100%	ζ					>91%,9	95%							

表 5.2

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(四)旁路	络 见表	6.1-6.2														
型	号	8910	8915	8920	8930	8940	8950	8960	8980	89100	89120	89160	89200			
相	数						三相	+N+G								
标称	电压		200VAC/380VAC(范围±25%)													
标称频	频率		50Hz/60Hz(范围±5%)													
逆变器	/旁路		50Hz/60Hz(范围±5%)													
(转换日	时间)						(过载	戈)0ms								

表 6.1

表 6.2	
-------	--

						r			r				
型	号	89220	89230	89240	89260	89280	89300	89320	89330	89340	89360	89380	89400
相	数	三相+N+G											
标称电压		200VAC/380VAC(范围±25%)											
标称频率		50Hz/60Hz(范围±5%)											
逆变器/旁路													
(转换时间)		(过载)0ms											

表 6.2

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7.2 系统技术参数的说明:

(五)系统 见表 7.	1-7.2												
型号	8910	8915	8920	8930	8940	8950	8960	8980	89100	89120	89160	89200	
效率 负载 100%	>80%												
计算机通讯接口	RS232,(485、网络远程监控 选件)												
运行温度	0~40°C												
相对湿度(不凝结)	30%~90%												
运行高度(最大)	<1000米(每增加100米功率下降1%,最高4000米)												
冷却方式		强制通风(温控式)											
噪声 dB(根据负													
载和温度)距离机		40	\sim 50		45~55			55~65		65~75			
器 1M 处													
箱体颜色	灰白色(可选)												
输入电缆	底部/背部												
易维护	前面/上面/左右面均可打开												
外形尺寸	450×730×1100		710×720× 1450		710×850×		1100.2000.21000			1500×1140			
$W \times D \times H (mm^3)$					1500		1100×860		1680	×1800			
重量 (kg)	210	258	350	400	480	580	650	900	950	1050	1350	1580	
输入装置	接线端子排												
输出装置	接线端子排												

表 7.1

表 7.2

型	号	89220	89230	89240	89260	89280	89300	89320	89330	89340	89360	89380	89400
效率 负载	烖 100%	>70%											
计算机通	通讯接口	RS232,(485、网络远程监控 选件)											
运行	温度	0~40°C											
相对湿度	(不凝结)	30%~90%											
运行高度	(最大)	<1000米(每增加100米功率下降1%,最高4000米)											
冷却	方式		强制通风(温控式)										
噪声 dB	(根据负												
载和温度)距离机 器 1M 处		40~50				45~55			55~65		65~	65~75	
箱体	颜色	灰白色(可选)											
输入	电缆	底部/背部											
易维护		前面/上面/左右面均可打开											
外形尺寸													
$W \times D \times H (mm^3)$		1800×1250×1800											
重量 (kg)			2300				0 3150			3500			
输入装置		接线端子排											
输出装置		接线端子排											

表 7.2

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*以上数据为参考数据,若有变动以实物为准。

8、告警功能:

(一)报警1: 旁路电压故障或旁路保险丝 SCR 故障

- 以下情况报警会响起:
- 1. 旁路输入电压错误;
- 2. 旁路输入开关断开;
- 3. 旁路 SCR 保险丝断开或因输出短路而烧毁。

(二)报警 2: 主输入电源故障或整流输入开关断开

以下情况报警会响起:

- 1. 输入相电压不在(165~275) V_{AC}范围;
- 2. 输入频率不在(47.5~52.5) Hz 范围内;
- 3. 整流输入开关断开;
- 4. 由于 UPS 不正常,而导致三相整流器其中一相不能正常工作,参照目录检查找到该组的故障。

(三)报警3:电池低电压

以下情况报警会响起:

- 1. 电池电压过低;
- 2. 电池运行的时间低于设定的预定时间。

(四)报警4:电池放电

当电池放电时,报警声立即响起,大约在 2 分钟后,报警声自动停止;当电池放电至接近电池的临界终止电 压时,报警声重新响起。

(五)报警5:输出过载

指负载功率比额定输出功率大,即百分比数值大于 100%,如果负载的峰值电流过大,那么 UPS 会报警。当 UPS 报警时,就需要减少负载容量。否则 UPS 就会自动转入旁路供电,时间的长短是根据负载过载总值的反比计 算出来。

(六)报警6:暂时旁路工作

表示负载由旁路供电, UPS 将自动转回到正常运行状态(逆变器供电),这个暂时状态会有以下情况:例如: 负载过载,由旁路供电后,UPS 正等待逆变器恢复供电。

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(七)报警7:旁路输出过载

负载长时间超过100%VA,例如过载125%,逆变器可向负载供电1分钟,而后转至旁路供电。当过载去除后<125%,UPS可立即恢复正常运行状态。

(八)报警9:过热或风扇故障

当 UPS 的控制系统、逆变器功率模块或整流器功率模块因环境温度或风扇失效而产生过热情况时, UPS 转旁路供 电。

9. UPS 启动程序:

尽管 UPS 装有电池开关,它还是必须遵从下列操作顺序来开启 UPS:

8.1.打开输入整流开关(向上)。

8.2.打开旁路开关(向上)。

8.3.等电池低压灯熄灭后,打上电池开关。UPS 在无任何报警状态指示时,会自动由旁路转至逆变工作。

注: UPS 在接通电源 10 秒内没有合上整流开关会出现相序错误的报警信息,这时请按一下 F1 消出报警信

息,同时执行以上的 UPS 启动程序。

10. UPS 维修关机程序: (关闭逆变器, 让 UPS 旁路运行)

9.1.打开维修开关(向上)。

9.2.关闭电池开关(向下)。

9.3.关闭整流开关(向下)。

9.4.关闭旁路开关(向下)。

9.5.关闭 UPS 的输出开关(向下)。

11. 紧急关机程序:

本操作程序仅在出现失火、电击、电弧或造成其它危害时,可以操作,但会造成没有交流输出的危险。

——将所有的开关向下断开

12. 触摸屏简介:

E45T 易事特

触摸屏液晶显示器是本公司最新开发的 UPS 显示模块,采用当今最流行、最直观的图形操作界面。与一般的 LCD 显示模块相比,本触摸屏显示模块没有复杂的操作步骤,用户直接按显示器上的模拟按钮即可获得相应的信息,操作 简单易懂;同时触摸屏显示模块自带实时时钟和存储器,可记录 256 条事件记录和其他的设置信息。

13. 操作界面说明:

13.1待机画面

待机画面如图一所示。在 UPS 开机时会显示此待机画面。当触摸屏间隔四分钟不被碰触时,显示 C P U 将自动切断触摸屏背光电源-----如此可以延长背光的使用寿命,同时回到待机界面(如果 UPS 是在报警状态下,触摸屏将优先显示报警信息框,在报警信息撤消或手动取消警报之前显示 C P U 不会切断触摸屏背光电源回到待机界面)。



图一

13.2.1 流程图显示画面

流程图显示画面如图二所示。在待机画面时用手任意点击显示屏幕即可进入流程图显示画面。在此画面中可以 看到 UPS 的基本信息和工作状态的图形显示。画面中的各部分意义如下:

(1)市电按键:按此按键可以查看市电的输入状态和数据显示。

(2)UPS 基本信息:显示 UPS 的基本信息,包括:制造商信息、UPS 型号和版本号。

(3)细虚线:没有工作的模块用细虚线连接表示模块已停止工作。



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(4)粗实线:工作中的模块用粗实线相连表示模块处于工作中。
(5)输出按键:按此按键可以查看 UPS 的输出状态和数据显示。
(6)逆变器按键:按此按键可以查看逆变器的工作状态和数据显示。
(7)系统参数设定模块:用于设定系统时间、语言等。
(8)UPS 序列号:显示 UPS 的生产序列号。
(9)电池按键:按此按键可以查看电池的工作状态和数据显示。
(10系统时间:实时系统时间显示。
(11)从机标记:表示本机在并机系统中处于从机工作状态。
(12系统管理模块:用于对 UPS 进行控制、系统记录查询等。



13.2.2测量数据显示界面

按市电按键、输出按键、逆变器按键、电池按键和整流器按键都可以进入相对应的测量数据显示界面。图三 是按输出按键显示 UPS 的输出信息和数据显示。画面中的各部分意义如下:

(1)表格标题。

(2)表格内容: 各种状态和数据显示。

(3)系统时间:实时系统时间显示。

(4)返回按键:按此按键返回上一级目录。

(5)退出按键:按此按键退出所有目录回到待机画面。



图三

13.2.3 显示板说明



13. 2. 4 LED 及按键说明:

(1)市电输入指示 (2)旁路指示 (3)逆变指示 (4)电池低指示 (5)过载指示 (6)系统故障指示 (7)
 F1:组合键/消音键 (8)F2:开机 同时按F1和F2键关机,长按F1键进入设置模式。

13.2.5 管理显示界面

管理显示画面如图四所示。在流程图显示画面时用手点击系统管理模块按键即可进入管理显示画面。在此画面中可以按相对应的按键可以对 UPS 进行对应的操作。画面中的各部分意义如下:

(1)开/关 UPS 操作按键: 在关机状态下,按键显示'启动系统',按下此按键可以启动 UPS;在 UPS 开机状态下,按键显示'关闭系统',按下此按键可以关闭 UPS。(为了防止误操作,系统会要求输入操作密码。)

(2)电池测试操作按键: 在 UPS 开机状态下,按下此按键 UPS 进入电池测试模式。(为了防止误操作,系统会要求 输入操作密码。)

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(3)关于:按此按键查阅触摸屏版本信息。

(4)消除报警操作按键:消除蜂鸣器报警。(要求输入操作密码。)
(5)UPS 当前运行状态显示。
(6)退出按键:按此按键退出所有目录回到待机画面。
(7)返回按键:按此按键返回上一级目录。
(8)帮助:按此按键查阅触摸屏帮助信息。
(9)系统信息:按此按键查阅 UPS 额定信息。

(10)系统记录:按此按键查阅触摸屏所记录的事件信息。



图四

13.3.1 输入密码界面

某些操作会改变 UPS 的当前工作状态,如:开/关系统等,此时系统会要求操作者输入操作密码,否则将不于执行。系统出厂时的初始操作密码为 1234。输入密码界面如图五所示。画面中的各部分意义如下:

(1)输入的密码:显示输入的密码位数。为了保密,用户输入的数字将会用'*'代替。

(2)数字键: 输入相对应的数字。

(3)确定键:输入完成后,按此按键表示密码输入完成。

(4)取消键:退出输入密码对话框。

当输入密码正确后,系统会执行对应的操作。



图五

13. 3. 2 事件记录查询界面

在管理显示画面下按系统记录按键即可进入事件记录查询界面。此界面显示了系统所记录的所有事件,界面 如图六所示。画面中的各部分意义如下:

(1)事件在存储器中的排列次序,最新事件排列在最前面,序号最小。

(2)事件代码。

- (3)事件时间:事件发生时的时间记录。
- (4)时间描叙: 描叙具体的事件类型。

(5)上翻一页: 查询另外8个事件记录。

(6)下翻一页: 查询另外8个事件记录。

(7)退出按键:按此按键退出所有目录回到待机画面。

(8)返回按键:按此按键返回上一级目录。





13.3.3 当前 UPS 工作状态界面

在管理显示画面下按当前状态按键即可进入当前 UPS 工作状态界面。此界面显示了系统当前的工作状态,界面如图七所示。画面中的各部分意义如下:

(1)显示当前 UPS 的工作状态。

(2)退出按键:按此按键退出所有目录回到待机画面。

(3)返回按键:按此按键返回上一级目录





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13.3.4 设置显示界面

设置显示画面如图八所示。在流程图显示画面时用手点击系统参数设定模块按键即可进入设置显示画面。在此画面中可以按相对应的按键可以更改 UPS 的系统参数。画面中的各部分意义如下:

(1)时钟设置按键:更改系统时钟。(为了防止误操作,系统会要求输入操作密码。)

(2)语言选择按键:选择系统语言。系统支持中文和英文两种显示语言。

(3)帮助:按此按键查阅触摸屏帮助信息。

(4)返回按键:按此按键返回上一级目录。

(5)退出按键:按此按键退出所有目录回到待机画面。

(6)清除系统记录按键:清楚系统中的所有事件记录。(为了防止误操作,系统会要求输入操作密码。)

(7)修改密码:修改系统的操作密码。为了防止误操作,系统会要求输入旧的操作密码。输入新密码时要求输入两次,如果两次输入的新密码一致,则新密码设置完成。



13. 4. 1 输入密码界面

某些操作会改变 UPS 当前的参数设置,如:更改系统时间等,此时系统会要求操作者输入操作密码,否则将 不于执行。系统出厂时的初始操作密码为1234。输入密码界面和操作请参考 2.3.1 章节。

13. 4. 2 时钟设置界面

在设置显示画面下按时钟设置按键并正确输入操作密码后,即可进入时钟设置界面。此界面主要是为了输入 新的系统时钟,界面如图九所示。画面中的各部分意义如下:

(1)年:输入新时钟的年份显示。在还没有输入新的数字之前用'?'表示;当用户从数字按键输入新数值 时,显示用户输入的数字值。

(2)月:输入新时钟的月份显示。在还没有输入新的数字之前用'?'表示;当用户从数字按键输入新数值时,显示用户输入的数字值。

(3)日:输入新时钟的日期显示。在还没有输入新的数字之前用'?'表示;当用户从数字按键输入新数值时,显示用户输入的数字值。

(4)确定键:输入完成后,按此按键表示输入完成。

(5)取消键:退出输入新时钟对话框。

(6)数字键: 输入相对应的数字。

(7)分钟:输入新时钟的分钟显示。在还没有输入新的数字之前用'?'表示;当用户从数字按键输入新数 值时,显示用户输入的数字值。

(8)秒:输入新时钟的秒显示。在还没有输入新的数字之前用'?'表示;当用户从数字按键输入新数值时, 显示用户输入的数字值。

(9)小时:输入新时钟的小时显示。在还没有输入新的数字之前用'?'表示;当用户从数字按键输入新数 值时,显示用户输入的数字值。



图九

注意:用户设置时从左至右设置,即设置顺序为: 年→月→日→时→分→秒,用户每输入一个数字,则光标自动右移一位,所对应的'?'便为用户所输入。

13. 4. 3 事件记录清除界面

在设置显示画面下按清除记录按键并正确输入操作密码后,即可进入事件记录清除界面。在此界面系统将删 除所有的事件记录,**数据删除后将不可恢复**,请用户慎用。界面如图十所示。画面中的各部分意义如下:

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(1)消息框。

(2)进度条:表示删除任务的完成进度。







13. 4. 4 语言选择界面

在设置显示画面下按语言按键后,即可进入语言选择界面。在此界面可以选择系统在显示时所使用的语言, 系统支持中文和英文两种显示语言。界面如图十一所示。画面中的各部分意义如下:

(1)消息框。

(2)中文语言选择框:按此按键则系统将在显示时使用中文语言显示各种信息。(3)英文语言选择框:按此按键则系统将在显示时使用英文语言显示各种信息。







13.5报警界面

当 UPS 处于报警状态时,显示模块将自动优先显示报警界面,如果 UPS 报警信息未撤消则显示模块将一直显示报 警界面直到报警信息撤消或用户手动消除警报。报警界面如图十二所示。画面中的各部分意义如下:

(1)报警消息框,报警信息显示在此消息框中。

(2)报警信息显示。

(3)确定键,按下此键可以消除 UPS 报警声,同时也退出报警界面显示。



图十二

13.6事件代码

系统会自动将一些重要事件和事件发生的日期时间记录下来以备日后查询和管理用,系统最大可以存储 256 条事件。每一种不同的事件都用不同的代码(CODE)表示。用户在系统管理操作画面中按系统记录按键可以查询事件纪录。 在表格中,显示屏除了显示每一条记录的代码和时间外,还会给出简单的事件描叙。在以下的表一中我们会给出所有 的事件代码和详细的事件描叙。

事件代码 表十三:

事件代码	具体事件描叙
000	空白,该存储空间无记录。
001	市电故障。
002	电池电池电压低。
003	UPS 过载。
004	温度故障,表示温度过高。
005	相序错误,表示 UPS 输入的相序不对。
006	逆变故障,表示逆变器发生故障。
007	系统故障。
008	旁路输出事件,表示 UPS 切换到旁路输出。
009	逆变输出事件,表示 UPS 切换到逆变输出。
010	整流故障,表示整流器发生故障。
021	市电恢复正常。
022	电池电压恢复正常。
023	负载恢复正常。
024	UPS 温度恢复正常。
025	UPS 输入相序恢复正常。
031	传输故障。
032	传输恢复正常
041	自动关机,表示 UPS 由于电池低压或其他故障自动关闭机器切到旁路输出。
042	UPS 重新启动。
043	UPS 进入电池测试状态。
044	手动消除蜂鸣器报警。
045	手动关闭 UPS。
051	用户从监控终端发出远程关闭 UPS 操作指令。
052	用户从监控终端发出远程启动 UPS 操作指令。
053	用户从监控终端发出远程测试 UPS 操作指令。
054	用户从监控终端发出消除蜂鸣器报警指令。
061	整流器开始工作。
062	整流器停止工作。
其他	未知故障,错误的故障记录。
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13.7. 使用注意事项

1. 按键用食指或中指的指面部位,避免用指夹等尖器点击屏幕,以防止划伤触摸屏表面,影响显示效果。

2. 参数设定结束后,系统会马上把修改值永久记忆在机器内部,不受系统电源的有无影响。

3. 已记录的事件会永久记忆在机器内部,不受系统电源的有无影响。但是如果记录数量超过最大的存储数目那么 最新记录会自动覆盖最老的记录。用户也可在系统设置操作界面上直接删除所有的事件记录。

4. 系统时间采用 24 小时制,日期采用阳历。

5. 用户第一次开机使用时,请重新校正系统时间并清除系统记录。

若用户在使用时,对说明书内容不能理解或想获得更详细的帮助,请与经销商联系或向我公司咨 询,我们将热忱为您服务。

TEL: (0769) 7880935 7883990

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邮编: 523722

地址: 广东省东莞市塘厦镇大坪管理区东方集团

附表:

装箱清单

序号	名称	数量/单位	备注
1	UPS 主机	1台	
2	使用说明书	1本	
3	3/3 安装手册	2本	
4	产品保修卡	1份	
5	RS232 安装光盘	1张	
6	RS232 通讯线	1条	
7	UPS 监控软件使用手册	1本	
8	钥匙	2 把	

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1. Brief introduction:

易事特

EA890 (3 phase in and 3phase out) series UPS is large power and true on – line UPS with range from 10KVA to 400KVA, which adopts advanced digital design, high speed 16 – bit chip, ASIC, DDC and large power IGBT&SCR, and shows large capacity, high stability and super performance compared with usual models on the market. All the products have integrated the latest hardware and powerful software in itself, which could provide optimum pure power to integrated server center. This system supports several units connected in parallel through unique control technology.

The liquid crystal display of touch-sensitive screen is that UPS which our company develops newly shows the module, adopt nowadays most popular, most ocular figure operate interfaces. Compared with the situation that general LCD shows the module, this touch-sensitive screen shows the operating sequence without complicatedness of the module, users press the simulation button on the display and can obtain corresponding information directly, operate and is easily understood; and it brings real-time clock and memory by oneself, can write down 256 information and other establishment message.

2. Operation demand:

- > Please read carefully the user manual before using machine.
- This manual must be understood and conserved by professional...
- > This manual does not introduce the detail specification.
- > This manual just suit to EA890 (3 phase in and 3phase out) series UPS.

3. Notices :

- 3.1 Make sure relevant power input/output/battery/cable.
- 3.2.It must be steady grounding system.

3.3. There are a lot of high-voltage energy storage device in Machine, please don't open case and check, otherwise cause danger to lift, accept the consequences by oneself. The operator must understand the electrician basic knowledge and pore over the operation instructions.

3.4. Without permission, can't dismantle various kinds of connection cables without authorization.

3.5. Because this product is greater in volume, weight is relatively heavy, can't move at will, must not split and shake strongly Move, and keep ventilating it well.

3.6. In case of electrification, can't go to discharge the dust; Handy wet towel go to wipe and get rid of the dirt.

3.7. The battery must be changed by the professional and technical personnel, the battery changed out must deliver special circulation and give a new lease of life to the organization to deal with . The battery is " poisonous waste material "

3.8. UPS is not used when being installed a long time, the battery disposed will discharge automatically, at the same time the automatic consumption that chemical energy of the battery, at 25 degrees Centigrade according to the environmental climate around, the battery must be charged in every three months, if the temperature is greater than 30 degrees Centigrade, the battery should be charged once every two months . Only need to start UPS while charging, and run at least for 24 hours under the normal work pattern.

4、working principle :

4.1.EA890 3/3 series UPS adopts advanced digital design, , improved MTBF and steadily, one lone main control panel control all system. Which adopts microprocessor control and ensure that machine can work steadily and reliably.



Besides, UPS others parts: invert transformer, input inductance, IGBT, silicon controlled and switch.



Standard UPS principle

4.2.Standard UPS principle :





4.3.Mains inverter principle:

After AC input turn to DC filter through rectifier, then inverter invert through SPWM and output AC.



4.3.1.Normal inverter model:

Battery have been recharge full, after AC rectifier, then inverter output.





4.3.2. Inverter normally, and battery recharge working model:

battery voltage is low, after AC inverter, on one hand it will charge, on the other inverter output.



4.3.3. AC input failure, battery-working model:

AC input is failure, battery inverter and supply power.





4.3.4.Bypass output working model:

There is AC input, but inverter has been closed, meantime, output is supplied bypass.



4.4. Function module

4.4.1.Rectifier



- Protection short circuit rectifier switch
- Lightning arrestor

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- \rightarrow 6/12 Plus rectifier
- Input inductance
- Battery temperature compensate
- Battery floating charging
- > Battery timing balanced charging.
- > The input of rectifier can be limited in rated numerical value, at the same time , battery recharge in constant current, constant voltage, expert engineer can change rectifier working through setting parameter.

4.4.2.Inverter:



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5. Front panel introduction:



- (1) LCD display-----it indicates various kinds of data
- (2) LED statue display-----it indicates working statue
- (3 Input rectifier switch -----Control rectifier input
- (4) Bypass switch -----Control bypass input.
- (5) Output switch -----Control output
- (6) Battery switch -----Control battery input
- (7) Maintenance bypass switch -----Control AC bypass (just use it when maintenance)

- (8) Line bank-----Connect input, output, battery and grounding.
- (9)RS232 communication port

6.INSTALLATION:

6.1.Installation environment:

- > Temperature: $0^{\circ}C \sim +40^{\circ}C$
- ▶ Relative humidity: 30%~90%
- ➤ Altitude: ≤1000M
- ▶ Installation environment dimension (L×W×H): 2000×2000×2000
- \blacktriangleright Board pressure: 2000KG/M²
- The indoor environment demanded is as following:
- No dust
- > Appropriate indoor temperature: please operate UPS in $0 \sim 40^{\circ}$ C,

But it is 0° C when start, the idea operation temperature is 25° C.

- > There should be a good heat dissipation system, the following is a feasible method:
 - A: Natural ventilating system: Only suitable for low heat and vast space.

B: Man - made ventilating systems: Need to install the air conditioner when exceeds the peripheral temperature (TE) in chassis temperature (TA). As the TE and TA is close, the capacity of the heat distribution system will increase.

6.2. Check before installation:

Unpack the equipment and inspect again to determine if any external or internal damage has occurred.

Opening the main entrance, meantime, please check if all switches are disconnection.

6.3.Installation site:

Please place the UPS in the place where keeps good ventilation, rear panel of UPS and two side faces should keep more than 80cm away from the wall.

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➢ Do not lay goods on the UPS.

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- > It must have enough room to Overhaul in the front of equipment and above.
- > Battery box of equipment must keep enough position on right-hand side for battery overhaul.
- > Power line must be connected from bottom of machine.

6.4. Terminal connection diagram:



Before UPS is not being installed, please disconnect all switches.

Left: R_{x} S_{y} T_{y} N connect three phase input phase line and median line ;

Right : $N \propto R \propto S_{\infty}$ T connect three phase output phase line and median line;

E connect earth line; +, - connect battery positive pole and negative pole.



6.5.UPS three output sy	/stem 10-400KVA ca	able specification:	(unit: mm2)
	/		· /

	Inpu R S T						Ou	tput		Battery	
capacity	R	S	Т	N	Е	R	S	Т	Ν	+	-
8910	6	6	6	6	6	6	6	6	6	10	10
8915	6	6	6	6	6	6	6	6	6	10	10
8920	6	6	6	6	6	6	6	6	6	10	10
8930	10	10	10	10	10	10	10	10	10	20	20
8940	16	16	16	16	16	16	16	16	16	30	30
8950	25	25	25	25	25	25	25	25	25	50	50
8960	25	25	25	25	25	25	25	25	25	50	50
8980	40	40	40	40	40	40	40	40	40	80	80
89100	50	50	50	50	50	50	50	50	50	100	100
89120	60	60	60	60	60	60	60	60	60	120	120
89160	75	75	75	75	75	75	75	75	75	150	150
89200	100	100	100	100	100	100	100	100	100	200	200
89230	100	100	100	100	100	100	100	100	100	200	200
89240	106	106	106	106	106	106	106	106	106	216	216
89260	112	112	112	112	112	112	112	112	112	235	235
89280	121	121	121	121	121	121	121	121	121	253	253
89300	130	130	130	130	130	130	130	130	130	272	272
89330	143	143	143	143	143	143	143	143	143	300	300
89340	148	148	148	148	148	148	148	148	148	308	308
89360	156	156	156	156	156	156	156	156	156	326	326
89380	165	165	165	165	165	165	165	165	165	345	345
89400	173	173	173	173	173	173	173	173	173	363	363

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6.6. Battery connection

- Opening battery pack.
- Installation battery on the corresponding position and connecting the good battery connecting wire

6.7.connection inspection

Connect all input/output/battery/wire, check under matters:

- Whether all battery-connecting wires join correctly and keep in touch well,
- Input, output, the earth connection has already been connected in the corresponding wiring on the equipment is arranged correctly,
- The voltage of input end, frequency, phase should keep the same with voltage of bypass, frequency, and phase.

7.Specification

7.1 UPS series specification

7.1.1. Rectifier input parameter; Please refer to the following table 2.1-2.2

Model	8910	8915	8920	8930	8940	8950	8960	8980	89100	89120	89160	89200
Capacity (KVA)	10	15	20	30	40	50	60	80	100	120	160	200
Input single max. current	25	33	40	55	71	86	102	133	164	195	227	303
Working way and principle	On li	ne, stat	tic bypa	ss switcl	n (zero ti	ransfer ti totall	ime), Do y isolate	ouble swi	tch techn	ology, o	utput po	wer to
Phase						3phas	se +N+G					
Nominal voltage					3801	/AC (40	OOVAC)	$\pm 25\%$				
Nominal frequency					50H	$Iz \pm 10\%$	5, 60Hz	$\pm 10\%$				
Voltage harmonics distortion		<5%										
Soft start						0~10	0% 5se	c				



Table 2.2

Model	89220	89230	89240	89260	89280	89300	89320	89330	89340	89360	89380	89400
Capacity (KVA)	220	230	240	260	280	300	320	330	340	360	380	400
Input single max. current	335	350	365	396	426	458	488	502	518	549	579	609
Working way and	On lin	e, static	bypass sv	vitch (ze	ro transfe	er time), I	Double s	witch tec	hnology	, output p	ower to t	otally
principle		isolate										
Phase						3phase +	-N+G					
Nominal voltage					380VA	AC (400V	$(AC) \pm$	25%				
Nominal frequency					50Hz	±10%,	60Hz±1	0%				
Voltage harmonics distortion		50Hz±10%, 60Hz±10% <5%										
Soft start						0~100%	5sec					

Table 2.2

7.1.2. Rectifier output parameter; Please refer to the following table 3.1-3.2

Table 3.1

Model	8910	8915	8920	8930	8940	8950	8960	8980	89100	89120	89160	89200
Max. output voltage						40	5VDC					
Microcomputer setting charge current				1A	~30A	(depend	l on batte	ery capac	city)			

Table 3.1

Та	ble 3.2												
	Model	89220	89230	89240	89260	89280	89300	89320	89330	89340	89360	89380	89400
	Max. output voltage						405	VDC					
Γ	Microcomputer												
	setting charge				1A	\sim 50A (depend	on batte	ry capaci	ty)			
	current												
						T-11.2	2						

Table 3.2

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7.2 Battery Please refer to the following table 4.1-4.2

Model	8910	8915	8920	8930	8940	8950	8960	8980	89100	89120	89160	89200
Max.disc hargecurre (A)	28	42	56	85	113	141	169	225	282	338	381	501
Battery quantity						3	0pcs					
Nominal battery voltage						36	0VDC					
Floating voltage						40	5VDC					
Charge current				1.	A~30A	(depend	d on batte	ery capac	ity)			

Table 4.1

table	4.2
-------	-----

Model	89220	89230	89240	89260	89280	89300	89320	89330	89340	89360	89380	89400
Max.disc hargecurre (A)	558	584	610	660	711	762	813	838	863	914	965	1015
Battery quantity						3	30pcs					
Nominal battery voltage						36	0VDC					
Floating voltage						40	5VDC					
Charge current		$1A \sim 50A$ (depend on battery capacity)										

Table 4.2



7.3 Inverter specification Inverter Please refer to the following table 5.1-5.2

Model	8910	8915	8920	8930	8940	8950	8960	8980	89100	89120	89160	89200		
Rated power (KW) COSφ=0.8						Capa	acity×0.	. 8						
Phase						3ph	ase +N+	G						
Nominal voltage	38	OVAC (400VAC	2) ±1%	6 (stead	ly load)	, 380VA	AC (400	VAC) =	±5% (lo	ad fluctu	ate)		
Nominal frequency			50)Hz±0	.05%, 6	60Hz±0	0.05% (1	battery su	upply pov	wer)				
Frequency stability: Out sync		$<\pm 0.05\%$												
Frequency stability: Synchronization		$<\pm5\%$												
Crest factor							3: 1							
Output wave						Si	ne wave							
Total harmonic distortion				Line	arity loa	ud <3%	; non-l	inearity l	oad<5%	, 0				
Dynamic load voltage transient (from 0 to 100% abrupt change)						<	<±5%							
Moment restart time						<	<10ms							
Balance load voltage				$<\pm$	1%; <	<±5%	(imbalar	nce load	voltage)					
Overload capability	125% 1min, 150% 1S													
Inverter, efficiency, load 100%						>9	1%,95%),						

Table 5.1





table 5.2					-				-	-				
Model	89220	89230	89240	89260	89280	89300	89320	89330	89340	89360	89380	89400		
Rated power (KW) COSφ=0.8						Capac	ity×0.7							
Phase						3phas	e +N+G							
Nominal voltage	380	VAC (4	00VAC) ±1%	(steady	load),	380VA0	C (400V	YAC) ±	5% (loa	d fluctua	te)		
Nominal frequency			50	$Hz \pm 0.0$	5%, 60	$Hz\pm0.0$)5% (ba	ttery sup	ply pow	er)				
Frequency stability: Out sync		<±0.05%												
Frequency stability: Synchronization		<±5%												
Crest factor						3	: 1							
Output wave						Sine	e wave							
Total harmonic distortion				Linea	rity load	<3%;	non-lin	earity lo	ad<5%					
Dynamic load voltage transient (from 0 to 100% abrupt change)						<:	±5%							
Moment restart time						<	10ms							
Balance load voltage				$<\pm1$	%; <	±5% (i	mbalanc	e load vo	oltage)					
Overload capability	125% 1min, 150% 1S													
Inverter, efficiency, load 100%						>91	%,95%							

Table 5.2



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7.4 Bypass Please refer to the following table 6.1-6.2

Table 6.1

Model	8910	8915	8920	8930	8940	8950	8960	8980	89100	89120	89160	89200	
Phase		3phase +N+G											
Nominal voltage		380VAC (400VAC) ±25%											
Nominal frequency		50Hz±5%, 60Hz±5%											
Inverter/bypass(transfertim		(overload) 0ms											

Table 6.1

Table 6.2

Model	89220	89230	89240	89260	89280	89300	89320	89330	89340	89360	89380	89400	
Phase		3phase +N+G											
Nominal voltage		380VAC(400VAC) ±25%											
Nominal frequency	50Hz±5%, 60Hz±5%												
Inverter/bypass(transfer time)	(overload) 0ms												

Table 6.2



7.5 systems specification:

Please refer to the following table 7.1-7.2

Model	8910	8915	8920	8930	8940	8950	8960	8980	89100	89120	89160	89200	
Efficiency load 100%	>80%												
PC communicationinterfae	RS232												
Working temperature		0∼40°C											
Humidity(non~condensing)		30%~90%											
Working height (Max.)		<1000m (per100m, power decline 1%, Max.4000m)											
Type of cooling		Forced draught											
Noise dB (according to													
load and temperature) far		40~	~50		45~55			55~65			65~75		
away machine 1M													
Case color						Gray (option)						
Input cable						The botto	om / back	-					
Easy maintenance]	The front	/ the abo	ove / left	and righ	t		-		
Dimension	450 imes	730 imes	710 imes	720 imes	710	× 050 × 1	1.500	11002/0602/1600			1500×1140		
$W \times D \times H (mm)$	11	00	14	50	$710 \times 850 \times 1500$			$1100 \times 860 \times 1680$			×1800		
Weight (kg)	210	258	350	400	480	580	650	900	950	1050	1350	1580	
Input device	Terminal												
Output device	Terminal												

Table 7.1



Table 7.2

Model	89220	89230	89240	89260	89280	89300	89320	89330	89340	89360	89380	89400	
Efficiency load 100%		>70%											
PC communicationinterfae		RS232											
Working temperature		0∼40°C											
Humidity(non~condensing)		30%~90%											
Working height (Max.)		<1000m (per100m, power decline 1%, Max.4000m)											
Type of cooling		Forced draught											
Noise dB (according to													
load and temperature) far	55~60			55~60			60~65			65~75			
away machine 1M													
Case color						Gray (option)						
Input cable					-	The botto	om / back	-					
Easy maintenance]	The front	/ the abo	ove / left	and righ	t				
Dimension						0000/10		0					
$W \times D \times H (mm)$					I	800×12	50×180	0					
Weight (kg)		2300 2600 3150						3500					
Input device	Terminal												
Output device	Terminal												

Table 7.2

*For reference only above data, EAST POWER reserves the right to implement changes to the above content without prior announcement.



8.Alarming:

8.1 Alarming 1: Bypass voltage failure or bypass fuse SCR failure.

- It will alarm under these conditions:
- 1. Bypass input voltage is wrong.
- 2. Bypass input switch cut off.
- 3. Bypass SCR fuse cut off or burned because of output short circuit or fuse cut off.

8.2 Alarming 2: Main input power failure or rectifier input switch cut off.

- It will alarm under these conditions:
- 1. Input voltage is not in the range (165 \sim 275) V_{AC}.
- 2. Input frequency is not in the range $(47.5 \sim 52.5)$ Hz.
- 3. Rectifier input switch cut off.
- 4. Because UPS is abnormal and cause one phase of three phase rectifier can not work normally, please find out the failure

thought consult contents.

8.3Alarming 3: Battery low voltage

It will alarm under these conditions:

- 1. Battery voltage is too low.
- 2. The time battery running is shorter than setting time.

8.4 Alarming 4: Battery discharge

When battery discharge, it will alarm at once, after 2 minutes, alarm will stop. Once battery discharge is up to battery final voltage, alarm again.

8.5 Alarming 5: Output overload.

When load power is bigger than rated output voltage, namely, more than 100 %, if load current is over big, UPS will alarm. When UPS alarm, it needs to reduce load capacity. Or UPS will turn to bypass, we get the time depend on over load value's inverse ratio.

8.6 Alarming 6: Temporality bypass working

It indicates bypass supply power; UPS will turn to normally run statue (inverter supply power). There are some conditions under this temporality statue, for example, overload, after bypass supply power, UPS is waiting for power supplied by inverter.



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8.7 Alarming 7: Bypass output overload

If overload time is too long, for example, overload 125%, inverter can supply power 1min. then turn to bypass. UPS will renew normal running statue.

8.8 Alarming 8: High temperature or fan failure

When control system of UPS, inverter power module or rectifier power module is over temperature because of high temperature or fan failure, UPS turn to bypass.

9. UPS start up process:

It must be operated to obey these sequence, thought there is battery switch in UPS.

9.1.Open input rectifier switch $\,(\mathrm{Up})\,$.

9.2.Open bypass switch (UP)

9.3.After battery low voltage indicator crust out, then open battery switch. When UPS is no any alarm statue indicator, bypass will turn to inverter statue.

Notice: it will display alarming information about the wrong phase sequence if rectifier switch is not cut off, at this time, please press F1 and silence, carry out UPS start up process.

10. UPS maintenance shut down process(Turn off Inverter, UPS bypassing)

10.1.
open maintenance switch (up)

10.2. close battery switch (down)

10.3.close rectifier switch (up)

10.4.close bypass switch (down)

10.5.close UPS output switch (down)

11. Emergency shut down process:

When it happens to fire, electric shock, electric arc or other dangerous. user can read this process and operate, but it maybe cause the dangerous that no AC output.

-----Make all switches cut off

12. Touch screen Introductions:

The liquid crystal display of touch-sensitive screen is that UPS which our company develops newly shows the module, adopt nowadays most popular, most ocular figure operate interfaces. Compared with the situation that general LCD shows the module, this touch-sensitive screen shows the operating sequence without complicatedness of the module, users press the simulation button on the display and can obtain corresponding information directly, operate and is easily understood; and it brings real-time clock and memory by oneself, can write down 256 information and other establishment message.

13. Operating interface introductions:

13.1 watchful waiting picture

It will show the watchful waiting picture when UPS starts the machine. When the interval of the touch-sensitive screen is not touched for four minutes, CPU will cut off the power in a poor light of touch-sensitive screen automatically, this way can lengthen in a poor light service life, and come back watchful waiting picture (if UPS is under warning state to get back to at the same time, the touch-sensitive screen will have priority to show the warning information frame, CPU can not cut off touch-sensitive screen in a poor light power before canceling warning information).





13.2 The flow chart interface

When the touch screen is under watchful waiting picture, you can touch it anywhere and enter into the flow chart interface.



You can know the basic information and working statue about this UPS. Every part of meaning in the picture is as follows: (1)Mains: Press it, you can look at the Mains input statue and data display.

(2)UPS basic information: Display UPS basic information, include manufacturer. UPS model and version number.

(3)Thin dotted line : It shows with detailed dotted line that the module has stopped to work.

(4)Heavy line: It shows with detailed dotted line that the module is working.

(5)Output: Press it, you can look at the UPS output statue and data display.

(6)Inverter: Press it, you can look at inerter working statue and data display.

(7)The systematic parameter establishes the module : It can set up time and langue.

(8) UPS serial No.: it display UPS products serial number.

(9)Battery: Press it, you can look at battery working statue and data display.

(10) system time: it can display time.

(1)slave marks: it show this UPS is working when it is parallel connection.

(12) systems manage module: it can control UPS and consult the system records.

(B)rectifier : Press it, you can look at the rectifier working statue and data display.



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13.3 Measure data display interface.

Press Mains key, output key, inverter key, battery key and rectifier key, then enter into corresponding measure data display interface, please consult the picture 3 and it show the output information and data display. Every part of meaning in the picture is as follows:

(1)Form subject

(2)Form contents: All kinds of statue and data display

(3)System time: System time display

(4)Back space: Press button this return to the catalogue at a higher level

(5)ESC: Press this button and withdraw from all catalogues and get back to watchful waiting picture





13.4 Display panel introductions



13.5 LED and press button introduction:

(1) Mains input indictor (2) Bypass indictor (3) Inverter indicator (4) Battery low voltage indicator (5) Overload indicator (6) system abnormal indicator (7) F1: combined key/silencing key (8) F2: shut up, Press F1 and F2 at the same time and shut down UPS, Press F1 and enter into set up model.

13.6 Manage interface introductions

Press system manage module when the flow chart interface display, then enter into manage interface and press corresponding button. Every part of meaning in the picture is as follows:

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(1)ON/OFF: When UPS is closed, the key display 'ON', Press this button and start UPS; when UPS is started, the key display 'OFF', press this button and close the UPS (system will demand to import password in order to avoid mistake).

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(2)Battery measure button: When UPS is working, press this and enter into battery measure model. (system will demand to import password in order to avoid mistake)

(3)about...: Press this button and consult the touch screen version number information.

(4)silencing: Make the buzzer silence. (system will demand to import password)

(5)UPS current working statue.

(6)ESC: Press this button and withdraw from all catalogues and get back to watchful waiting picture.

(7)Back space: Press button this return to the catalogue at a higher level

(8)Help: Press this button and consult help information.

(9)System information: Press this button and consult UPS's information.

(10) system records: Press this button and consult all history records.



13.6.1 Import password interface

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Some operation will change the present working state of UPS, for instance: ON / OFF system, system at this moment will require operator input password of operating, otherwise not carrying out. The initial operation password when the system is dispatched from the factory is 1234.please consult the picture 5. Every part of meaning the following in the picture

(1)Password: It display password number, user input the password, then the number will interest of '*'.

(2)Number button: Input corresponding number.

(3)Enter: After (2), press this button and enter into interface.

(4)ESC: Withdraw from the introduction password communication frame

When the password is right, system will carry out corresponding operation.



13.6.2 History records interface

Press system history records button when the manage interface display, and then enter into history records interface and press corresponding button. Every part of meaning in the picture is as follows:

(1)The permutation order in the memory of the incident, the newest incident is arranged foremost, the serial number is minimum

(2)Incident code

(3)Incident time: Time records when it has happened.

(4)incident description : It describes the incident type.

(5)UP: Consult above 8 pieces incident records.

(6)Down: Consult above 8 pieces incident records.

(7)ESC: Press this button and withdraw from all catalogues and get back to watchful waiting picture.

(8)Back space: Press this button and consult all history records.



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13.6.3 Current UPS working statue

Press current working statue button when the manage interface display, and then enter into current UPS working statue interface and press corresponding button. Every part of meaning in the picture is as follows:

(1)it shows current UPS working statue.

(2)ESC: Press this button and withdraw from all catalogues and get back to watchful waiting picture.

(3)Back space: Press this button and consult all history records.







13.7 Setup display interfaces

As picture 8 shows set up the picture of showing. Click with hand systematic parameter establish module button can be entered and set up the picture of showing at flow chart picture of showing. Then press the corresponding button and can alter the systematic parameter of UPS in this picture. Every part of meaning in the picture is as follows:

(1) Time setup button: It can change system time. (system will demand to import password in order to avoid mistake)

(2)langue setup button: You can choose one langue, ENGLISH /CHINESE.

(3)Help: Press this button and ask for some help.

(4)Back space: Press this button and consult all history records.

(5)ESC: Press this button and withdraw from all catalogues and get back to watchful waiting picture.

(6)Cancel button: Cancel all history records. (system will demand to import password in order to avoid mistake)

(7)Revise the password: Revise the systematic operation password. In order to prevent operating by mistake, the system will require the old operation password of introduction. Require introduction twice while inputting the new password, if the new password input twice is unanimous, the new password is set up and finished.



13.7.1 Import password interface

Some operation will change the present working state of UPS, for instance: ON / OFF system, system at this moment will require operator input password of operating, otherwise not carrying out. The initial operation password when the system is dispatched from the factory is 1234. Please consult the 13.6.1 about the operation.

13.7.2Time setup interface

Press time setup button and input right password when the setup interface display, then enter into the time setup interface. This interface is mainly for inputting the new systematic clock; the interface is as picture 9. Shows. Every part of meaning in the picture is as follows:

(1)Year: Show in year inputting the new clock. Before there is no new figure, and use '? ' Express; When users import new number value from the figure button, show the digital value that users input.

(2)Month: Show in month inputting the new clock. Before there is no new figure, and use '?' express; When users import new number value from the figure button, show the digital value that users input.

(3)Date: Show in date inputting the new clock. Before there is no new figure, and use '? ' express; When users import new number value from the figure button, show the digital value that users input.

(4)Enter: After inputting, press this button.

(5)Cancel button: Withdraw from the new clock communication frame of introduction.

(6)Number key: Input corresponding number.

(7)Minute: Show in minute inputting the new clock. Before there is no new figure, and use '?' express; When users import new number value from the figure button, show the digital value that users input.

(8)Seconds: Show in seconds inputting the new clock. Before there is no new figure, and use '? ' express; When users import new number value from the figure button, show the digital value that users input.

(9)Hours: Show in hours inputting the new clock. Before there is no new figure, and use '?' express; When users import new number value from the figure button, show the digital value that users input.







Notice: Users set up the time system from left to right while setting up, namely set up the order: Year \rightarrow Month \rightarrow Date \rightarrow Hour \rightarrow Minute \rightarrow Second, user input one figure each time, cursor then move to right one automatically, place corresponding '?' are input by user.



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13.7.3 Incident records elimination interface.

Press Incident records elimination button and input right password, the enter into Incident records elimination interface. Will delete all incidents to write down in this interface system, will be irrecoverable after the data are deleted, ask users to use carefully. The interface is as picture10 shows. Every part of meaning in the picture is as follows:

(1)message box

(2)Progress mark: Show that deletes the completion progress of the task



Picture 10.

13.7.4 langue interface

Press language button when setup interface display, then enter into language choose interface to set up. You can choose languages used while showing of system in this interface, the system supports two kinds of languages: Chinese and English. The interface is as picture 11 shows. Every part of meaning in the picture is as follows:

(1)message box

(2)Chinese: Pressing this button will use the Chinese language to show various kinds of information systematically while showing

(3)English: Pressing this button will use the English language to show various kinds of information systematically while showing




13.8 Alarming interface

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When UPS is in warning state, Display module will show the warning interface automatically and preferentially, if UPS warning information does not canceled and the display module show warning interface until the fact that warning information cancel or user cancel the alarming by hand. The warning interface is as picture 12 shows. Every part of meaning in the picture is as follows:

- (1)Warning information frame; Warning information shows in this news frame
- (2)Alarming information display

(3)Enter, Push this key and cancel UPS alarming, withdraw from warning interface at the same time.





14 Incident code

System will automatic to write down some important incident and date time that incident happen in order to managed and consulted in the future, system most heavy to may store 256 incidents. Every kind of different incident is expressed with different code (CODE). Users press the buttons and get the incident records. In the form, besides the incident code and time, it will also provide simple incident. We will provide all incident codes and detailed incident records in the following forms one.





Incident code	
Incident code	Detail incident description
000	Empty, no records
001	Mains failure
002	Battery low voltage
003	UPS overload
004	Over Temperature
005	Phase sequence abnormal, the UPS input phase sequence is wrong
006	Inverter abnormal, there is something wrong with inverter
007	System abnormal
008	Bypass output, UPS turn to bypass output
009	Inverter output, UPS turn to inverter output
010	Rectifier abnormal, there is something wrong with rectifier
021	Mains returns to normal
022	The voltage of the battery returns to normal.
023	Load returns to normal
024	UPS temperature returns to normal
025	UPS input phase sequence returns to normal
031	Transmit abnormal
032	Transmit return to normal;
041	Automatic shut-down, because battery low voltage or others failure, UPS Automatic shut-down and
	turn to bypass output.
042	UPS restart
043	UPS is battery testing statue
044	Cancel buzzer alarming by hand
045	Shut down UPS by hand
051	Users send out the order and close the UPS from long-distant monitoring
052	Users send out the order and start the UPS from long-distant monitoring
053	Users send out the order and test the UPS from long-distant monitoring
054	Users send out the order and cancel the buzzer alarming from long-distant monitoring
061	Rectifier start to work
062	Rectifier stop working
Others	Unknown trouble, wrong trouble record

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15 Notes

1 Please press button with facial location of forefinger or middle finger, please do not clicks the screen with sharp device in order to prevent scratching the touch-sensitive screen surface, influence the result of showing.

2. After parameter establish, system will remember inside machine for ever person who revise at once, system is not be influenced by power.

3.Incident that write down already can remember inside machine forever, system is not be influenced by power. If records quantity is exceed most heavy memory figure and the newest record can cover the most old record with automatically. User can operate interface delete all incident records directly to set up in system. 4.Systematic time adopts making in 24 hours, date adopts the solar calendar.

5. When it is used that users start the machine for the first time, please correct systematic time and remove the systematic record again.

If users can understand or want to get more detailed help to the content of the manual while using, please contact distributor or consult to our company, we will serve you heartily.

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