

嵌入式曲折缝电控系统
Zigzag Stitching Machine
Electronic Control System

LT-20U

用户手册

User Manual

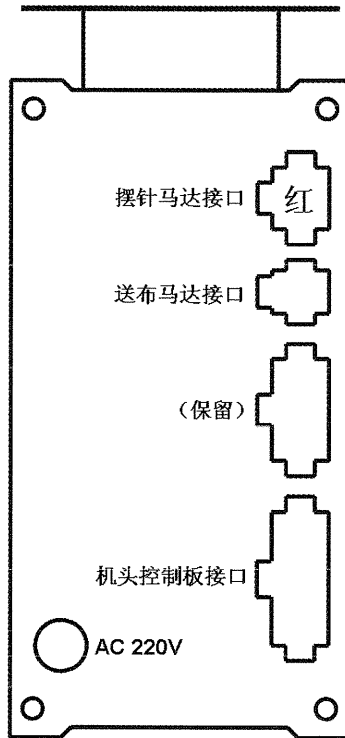
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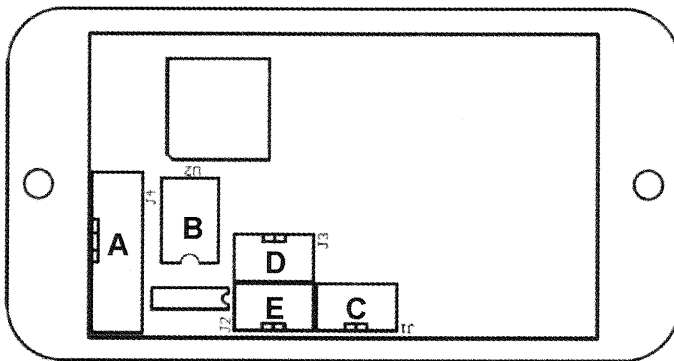
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1 控制箱硬件说明

1.1 控制箱的外部接口



1.2 机头控制板接口说明



机头控制电路板

插座/芯片	说明
A (J4 白色 7 针插座)	到控制箱的信号线插座
B (U2 花样芯片)	客户定制花样芯片
C (J1 红色 3 针插座)	摆针电机零点传感器插座
D (J3 白色 3 针插座)	同步传感器插座
E (J2 黑色 3 针插座)	送布电机零点传感器插座

注意： 当花样芯片取下时，系统仍然可以正常工作！但系统只保留自带的花样，客户定制的花样将不再存在。同时花样的宽度默认为 8.0mm，只有在缝纫时设置改变，断电后不能保存。

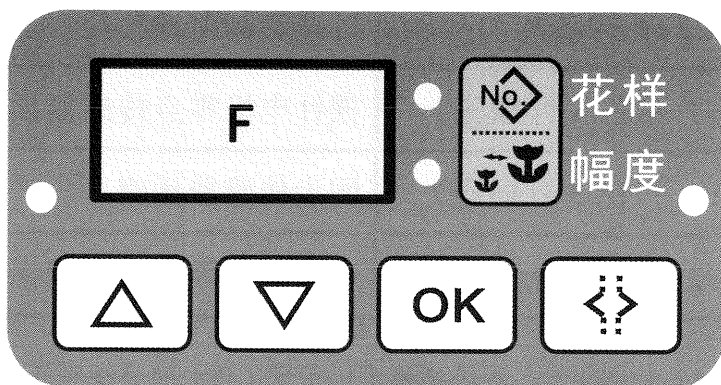
1.3 电源规格

电源电压：单相 AC 220V \pm 20%






工作电流：平均电流小于 1.2A，峰值电流小于 2A

2 界面及操作说明

2.1 界面说明



面板界面

按键/窗口	说明
F (显示窗口)	由 3 位红色数码管显示
	宽度、花样、针距选择按键
	增加按键
	减小按键
OK	确认按键
	花样镜像按键
	指示灯，指示选择到花样、宽度或针距

2.2 操作说明

- 1、系统允许客户对四个设置对象改变操作：花样号、花样宽度、花样针距、花样镜像，其中花样号、花样宽度、花样针距由选择按键先选定，并由对应指示灯显示。

- 2、对于 OK 按键，用户在改变花样号、花样宽度、花样针距以及花样镜像后，都需要按该键确认。
- 3、每次按 OK 按键，系统都会回零一次。系统开电后会自动回零一次。
- 4、镜像按键按下后，花样的宽度前会显示一个“r”，再按一次“r”消失。镜像操作是实时的，断电后也不会保存。
- 5、花样的宽度改变从 0.0 到 9.0mm，每 0.1mm 可改变。
- 6、花样的针距改变从 0.0 到 5.0mm，每 0.1mm 可改变。
- 7、系统自带花样号从 1 到 300 可变（不同规格系统自带花样数量不同），客户定制花样号从 201 到 230 可变（不同规格系统允许客户定制的花样数量不同）。

2.3 传感器测试

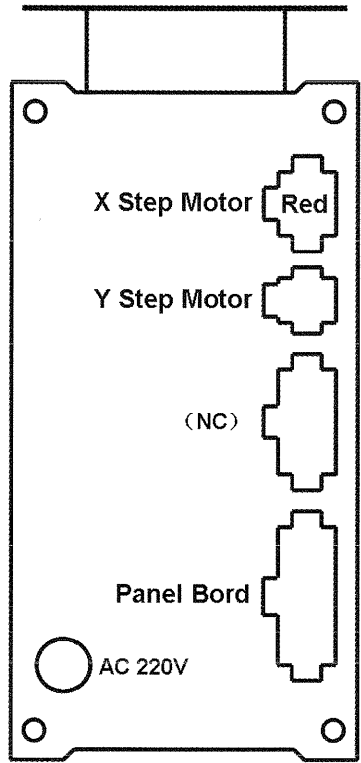
- 1、按住 OK 键同时开电，系统进入“PA1”界面（通过△、▽键选择 PA1、PA2 或 PA3），再按 OK 显示“L”或“H”，反复遮、放传感器观察值如有“L”和“H”翻转变则传感器是好的，反之故障。在“PA1”“PA2”、或“PA3”状态下长时间按 OK 键退出。PA1 对应摆针回零传感器，PA2 对应同步传感器，PA3 对应送布回零传感器。

2.4 报警

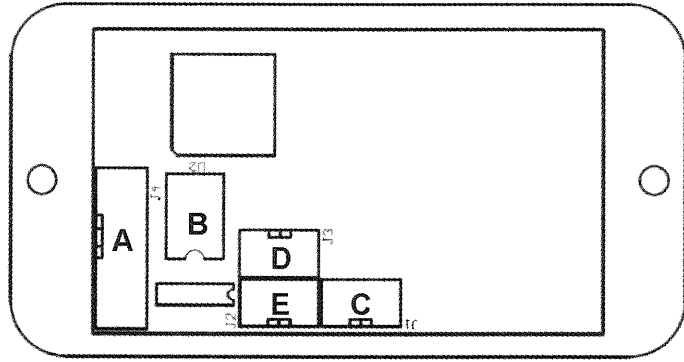
- 1、当回零传感器故障、马达故障、接线故障、机械卡死、以及遮光片规格/位置不正确时，系统开电回零或按确认 OK 键回零会报警“E-2”。
- 2、当客户花样芯片不存在，系统开电不会报警，系统照样可以正常工作，只是没有客户定制花样，花样号 201 到 230 不再可选，只能从 1 到 300 号选择系统自带花样。
- 3、同步传感器信号不正常时，运行时马达不会动，但系统不报警。系统可以正常回零。

3 Hardware Instruction

3.1 External Interface of Ctrl-Box



3.2 Panel-Board Interface



Panel-Baord

Socket /IC	Description
A (J4 White 7-Pins socket)	To control box Signal socket
B (U2 pattern chip)	Custom pattern chip
C (J1 Red 3-Pins socket)	X motor zero sensor socket
D (J3 White 3-Pins socket)	Syn sensor socket
E (J2 Black 3-Pins socket)	Y motor zero sensor socket

Notice: When Custom pattern chip removed, the system can still work normally! But only keep own patterns, customized patterns will no longer exist, pattern width is default 8.0 mm at the same time, can be changed only when setting, cannot be saved after the power off.

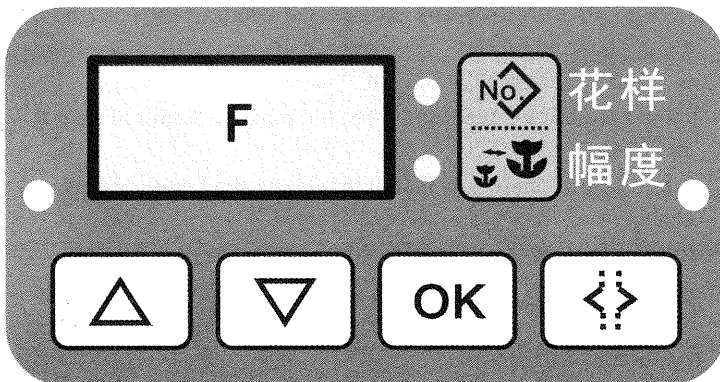
3.3 Power specification

Supply voltage: Single-phase, AC 220 V +/- 20%






Operating Current: Average Current is less than 1.2 A, Peak Current is less than 2 A.

4 Interface and instructions

4.1 Interface specification



Panel interface

key/window	Description
F (Display window)	By three red LED display
	Pattern Width、 Pattern No. and Stitch Length selection Key
	Add Key
	Dec Key
OK	Confirm Key
	Pattern image mirror Key
	Indicator light, indicates Pattern Width、 Pattern No. or Stitch Length

4.2 Operating instructions

- 1、 System allows clients to 4 items change operation: Pattern No.、 Pattern width、 Stitch Length and Pattern Mirror, The Pattern No.、 Pattern width、 Stitch Length by selection Key selected first, and the corresponding indicator light display.
- 2、 For OK key, the user to change pattern No, pattern width, Stitch Length and pattern mirror, all need to press the it to confirm.
- 3、 Each press OK Key, the system will go to Zero point. The system will automatically go to zero one time after power on.
- 4、 When Pattern Mirror Key pressed, the width of the pattern will show a "r", again according to the "r" disappear. Pattern Mirror operation is real-time, is not saved after the power off.
- 5、 Pattern width range is from 0.0 to 9.0 mm, the width of each 0.1 mm can be changed.
- 6、 Stitch length range is from 0.0 to 5.0 mm, the length of each 0.1 mm can be changed.
- 7、 System Pattern No. from 1 to 300 variable (System specifications different, pattern number. is different). Custom Pattern No. from 201 to 230 variable (System specifications different, number of custom Pattern allows to customize different)

4.3 Sensor checking

Press OK key when power on, the system of "PA1" into the interface (Through the \triangle or ∇ key to choose PA1, PA2 and PA3) And then press OK to show the "L" or "H", covering or opening sensor repeatedly, to observe such as "L" and "H" reverse changed, sensor is good, instead of failure. In the condition of "PA1", "PA2" or "PA3" long press OK key to exit. PA1 corresponding X motor sensor, PA2 corresponding synchronous sensor, and PA3 corresponding Y motor sensor.









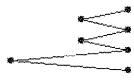





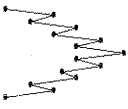


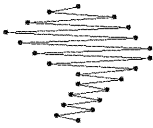





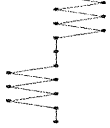






4.4 Alarm

- 1、When the zero sensor failure, motor fault, connection failure, mechanical jammed, and reaction plate specifications or position is not correct, system will alarm "E -1/ 2/3" during power on or pressing OK key.
- 2、When a customer pattern chip does not exist, system does not alarm during power on, system can work normally without custom patterns.
- 3、Synchronous sensor signal is abnormal, the motor will not move, but the system doesn't alarm. System can go to zero normally.

附录 1：单轴系统花样(基本版)

Appendix 1: Single-axis System Pattern (Basic Ver.)


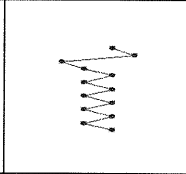
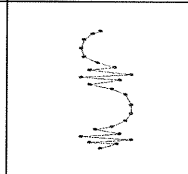
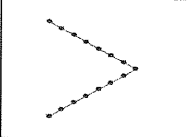
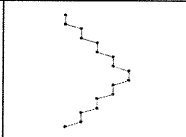
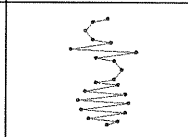
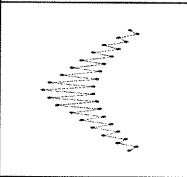
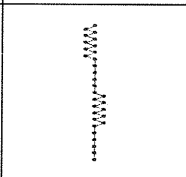
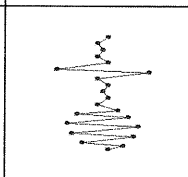
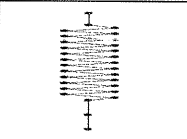
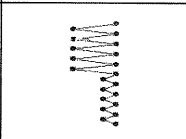

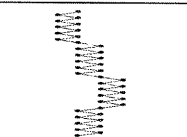
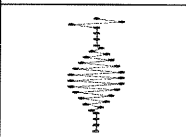
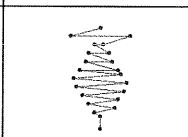
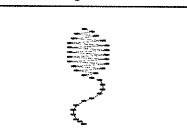
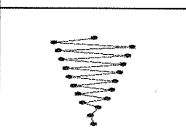

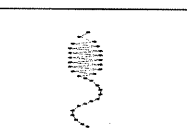
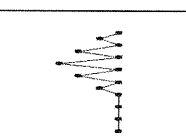
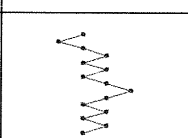

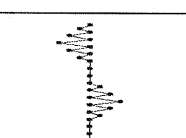

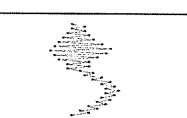

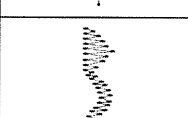
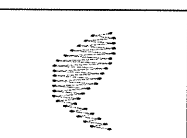
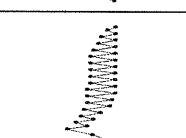
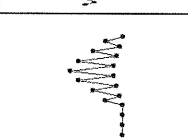
单轴系统花样 (1)
Single-axis System Pattern (1)

花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure
1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	


















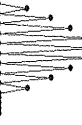





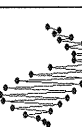






单轴系统花样 (2)
Single-axis System Pattern (2)

花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure
31		41		51	
32		42		52	
33		43		53	
34		44		54	
35		45		55	
36		46		56	
37		47		57	
38		48		58	
39		49		59	
40		50		60	

单轴系统花样 (3)
Single-axis System Pattern (3)

花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure
61		71		81	
62		72		82	
63		73		83	
64		74		84	
65		75		85	
66		76		86	
67		77		87	
68		78		88	
69		79		89	
70		80		90	

单轴系统花样 (4)
Single-axis System Pattern (4)









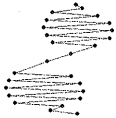



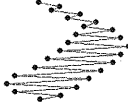

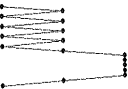
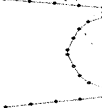

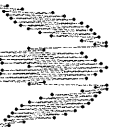

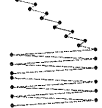


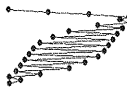
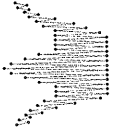

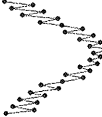




花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure
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92		102		112	
93		103		113	
94		104		114	
95		105		115	
96		106		116	
97		107		117	
98		108		118	
99		109		119	
100		110		120	

单轴系统花样 (5)

Single-axis System Pattern (5)

花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure
121		131		141	
122		132		142	
123		133		143	
124		134		144	
125		135		145	
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127		137		147	
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130		140		150	

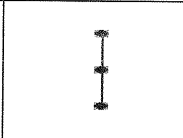
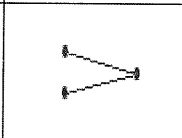
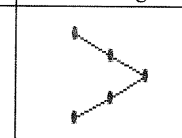
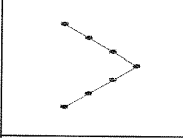
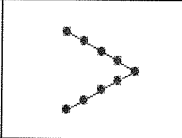
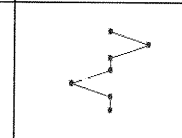
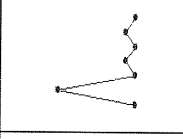
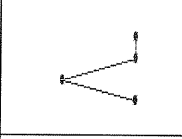
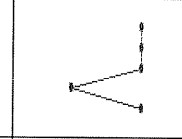
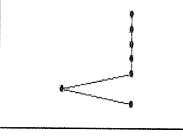
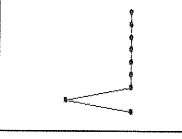
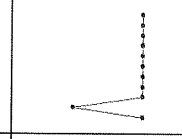
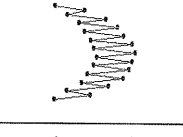
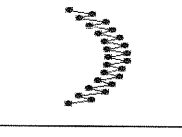
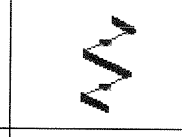
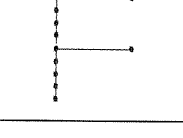
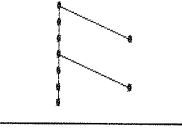
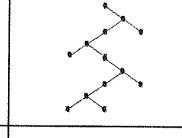
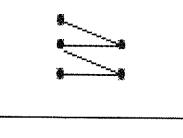
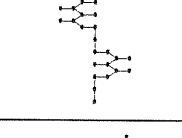
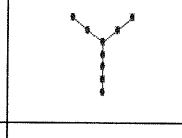
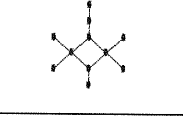
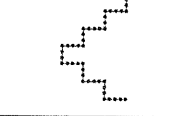
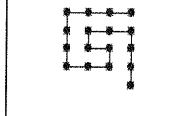
单轴系统花样 (6)
Single-axis System Pattern (6)

花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure
151		161		171	
152		162		172	
153		163		173	
154		164		174	
155		165		175	
156		166		176	
157		167		177	
158		168		178	
159		169		179	
160		170		180	

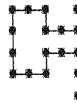

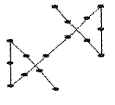
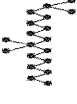

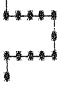







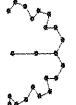















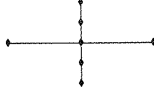
附录 2：双轴系统花样(基本版)

Appendix 2: Double-axis System Pattern (Basic Ver.)

双轴系统花样 (1)
Double-axis System Pattern (1)

花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure
1		2		3	
4		5		6	
7		8		9	
10		11		12	
13		14		15	
16		17		18	
19		20		21	
22		23		24	

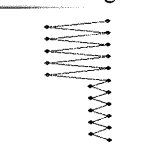
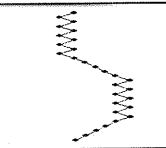
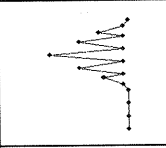
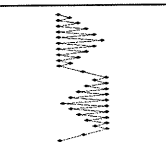
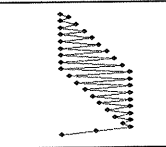
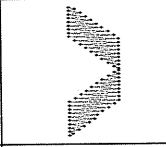
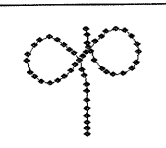
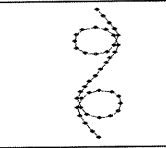
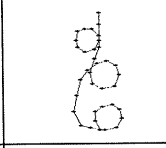
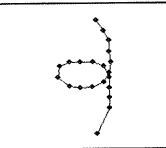
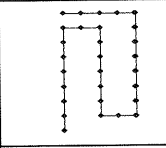
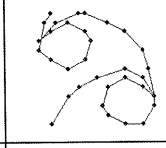
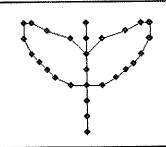
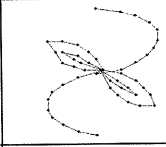
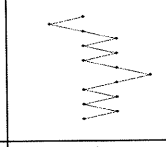
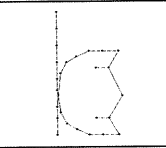
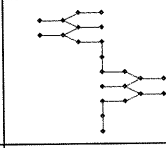
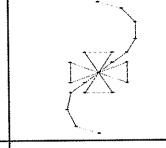
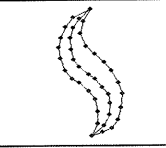
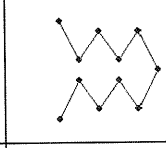
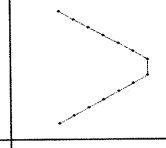
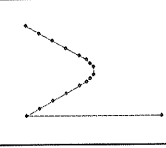
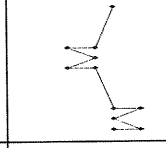
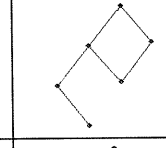
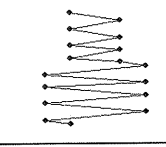
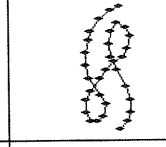
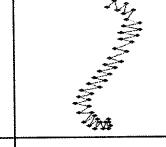
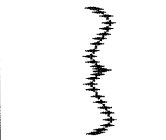
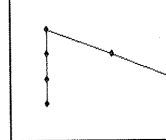
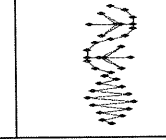
双轴系统花样 (2)
Double-axis System Pattern (2)

花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure
25		26		27	
28		29		30	
31		32		33	
34		35		36	
37		38		39	
40		41		42	
43		44		45	
46		47		48	
49		50		51	
52		53		54	

双轴系统花样 (3)
Double-axis System Pattern (3)

花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure
55		56		57	
58		59		60	
61		62		63	
64		65		66	
67		68		69	
70		71		72	
73		74		75	
76		77		78	
79		80		81	
82		83		84	

双轴系统花样 (4)
Double-axis System Pattern (4)

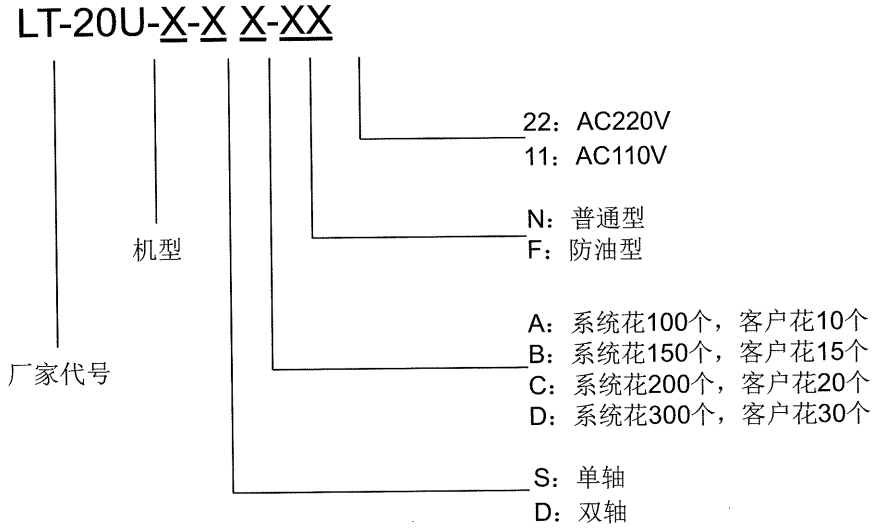
花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure
85		86		87	
88		89		90	
91		92		93	
94		95		96	
97		98		99	
100		101		102	
103		104		105	
106		107		108	
109		110		111	
112		113		114	

双轴系统花样 (5)

Double-axis System Pattern (5)

花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure	花样号 Pattern No	花样图案 Pattern Figure
115		116		117	
118		119		120	
121		122		123	
124		125		126	
127		128		129	
130		131		132	
133		134		135	
136		137		138	
139		140			

附录 3：系统产品规格及型号说明



Appendix 3: System specifications and Type

