

CONTROL PANEL MANUAL

Tre 1F

Quattro 1F

Orlo 1F

Cinque 1F

High speed industrial overlock
sewing machine



General Safety Instructions

1. Do not put your feet on the pedals when the control box and motor is switched on (boot status)
2. Let professionals to install and debug this product
3. Do not open the control box and the motor cover when energized
4. Please turn off the power when changing the needle,threading or replacing the bottom line
5. During installation and removal service,please turn off the power and pull the plug
6. Please turn off the power when turn lift sewing machine
7. When use this product, please stay away from high-frequency electromagnetic waves and radio wave transmitters, etc., in case the electromagnetic waves generated interfere with the servo drive to occur wrong action.

Solemnly Declare:

1. Do not comply with the manual book operating regulations and the safety requirements, all accidental occurrence should be taken by yourself.
2. Without our authorization, please do not alter our products, our company is not liable for any consequences arising therefrom.

Product Instruction:

We design and manufacture the servomotor for the purpose of Mechanotronics. This motor features in energy-saving, high production efficiency, environmental and compact Could be used for different industrial sewing machines

1. Construction

The servomotor is composed of control system and motor

A. Control system includes control box and pedal speeder

This control system features is easy to use and features in excellent performance, including quick start, quick stop (sewing machine), accurate needle Position. Furthermore, the modular circuit has Self-Protection System when against lower voltage, overcurrent , overheat etc. Speed stepless is realized by the pedal speeder.

B. Specifications

Voltage	220V 2 phase
Frequency	50~60HZ
Speed	200-6000RPM
Motor torque	≤2.2NM

Installation for Control Panel

1. The system key diagram is as follows:



2. Button functions:

No	Button	Function
1		Parameter button. Hold the "P" key and the "+" key to enter user parameters; no password is required Hold the "P" key and the "-" key to enter system parameters; a password is required.
2		Parameter confirm button
3		Up key (when increasing value)
4		Down key (when decreasing value)
5		LED button. Press the button, the digital tube displays "L on" and the machine LED function turns on; press again and it displays "L oFF", turning the LED function off.
6		Needle position button. Tap the P button, and the digital display will show: up – needle stops in the up position; - press again to show dp – needle stops in the down position; - press again to show on – no needle stop.

3. How to enter the parameters:

Example: How to change the motor rotation from clockwise to counterclockwise

Step 1: Turn on the power;

Step 2: Press and hold the "P" button, then press the "+" button with the other hand. The screen will display **P-00**;

Step 3: Press the "+" button again. The screen will display **P-02**.

(**P-02** is the parameter for motor rotation direction, listed in the common parameter table).

To enter the parameter method of operation

Example: How to change the motor from clock wise to Counterclockwise:

1: Open the power ;

2: Press the "P"key, no leave, and use the other hand press the "+"key, the screen will display the p-00

3: Press "+"key, the screen will display p-02, (p-02)is a motor clockwise or Counterclockwise wise parameters (common parameter list has)

4: Now press"P"key (enter into parameter)screen will display "1"

5: Press "-"key, change"1" to "0" ("1" clockwise"0"for the counter-clockwise, common parameters list has)

6: Press the "S"key to determine the parameters, save and exit the parameter.

4. Factory Reset:

Restore factory settings:

Restore factory settings: Press the P key, no leave, and use the other hand press the "+" key, the screen will display the p-00, then press "S" key seconds, it will Restore factory settings.

Commonly used parameter setting

Code	Parameter name	Adjusting range		The factory Setting	Note
P-01	Maximum speed lock	200-6500RPM		4500	
P-02	Direction of rotation	0 is counter clockwise	"1" is clockwise turn	1	
P-03	The needle Angle	6-18		12	
P-04	Start sewing speed	200-800		250	
P-05	Speed up and slow	2000-4000		3500	
P-06	Set the seam	0-999		0	
P-10	Automatic clearance run(run)	Then press the S key change to I		0	Turn off the electricity stopped running
P-11	Presser foot ascend starting time	0-2000ms		0	
P-12	Ascension presser foot protection time	1-120s		4s	
P-13	Maximum current limiting	50-1000		280	
P-14	The location of the needle	1 : detecting needle 0 : no detection		1	
P-15	Whether to detect the up needle position	1: detecting needle 0: no detection		1	
P-17	factory reset code	1-3		1	when open the parameter "P09", then it can occur "P17", set "3", then long press "OK" button to recover the factory code
P18	factory code	0000-9999		2013	
P19	soft start stitches	0-15		0	0 stitch is close this function, 1-15 stitches is open the soft start , and set the stitches (upper needle position is effective)

P20	soft start speed	200-3500	800	
P21	suction function	0: close 1:start	1	Motor running open/close suction function
P22	suction start stitches	1-200	30	suction open stitches (P23 stitches open Have effective)
P23	suction close stitches	0-200	0	
P24	suction action maintain time	50-2000ms	120ms	This parameter do not use now
P25	suction full power time	35-1000ms	120ms	
P26	the power of suction full power	5-100%	100%	
P27	suction maintain power	1-100%	80%	
P28	suction release time	0-500ms	20ms	
P29	suction protection time	1-120s	30s	the longest time of suction single action
P30	foot presser trigger mode	0: close 1:start	0	1. When set to 0, the foot presser does not lift when pressing the back pedal of the speed controller. When set to 1, the foot presser lifts when pressing the back pedal. 2. The presser stays lifted until the front pedal is pressed or the protection time is reached. Also, the foot presser automatically lifts every time the machine stops.
P-31	back foot presser lifter start time	0-2000ms	0	the time of back step delay start foot presser
P-32	foot presser lifter action maintain time	50-1000ms	160ms	This parameter do not use now
P-33	foot presser lifter full power time	35-1000ms	160ms	
P-34	the power when the foot presser lifter full power	5-100%	100%	
P-35	foot presser lifter maintain power	1-500%	80%	
P-36	foot presser lifter release time	0-120ms	30ms	the foot presser lifter release time

P-37	foot presser lifter protection time	1-100s	10s	the biggest maintain time of the foot presser lifter single time
P-38	display time	200-6500RPM		display the current motor real speed
P-39	display the volt of speed controller	14-1010	195 Neutral point volt	Display the Current speed controller volt 0-1024, it is equal 0-5V
P-40	display DC buses voltage	60-500V	310v	When the voltage exceeds 395V, an alarm will be triggered. (DC bus voltage ÷ 1.414 = AC bus voltage)
P-41	Overload protection switch	0: close 1:start	1	Set to 0 to disable overvoltage alarm. Set to 1 to enable the alarm. When the DC bus voltage exceeds 395V , it triggers alarm Er16 , and the motor automatically stops running. Once the voltage drops below 385V , the motor can run again. Set "0" to disable.

Common faults and treatments

Error code	Error content	Several possible error problem
Er01:	No stop signal	1. locator signal plugs not inserted 2.the locator induction position close to the point keep 1mm-1.5mm distance and magnetic steel
Er02:	Not find the speed controller	1.Speed control device plug is not insert. 2.Speed controller wire is broken
Er03:	Motor Hall or phase error	1. Nine hole plug contact undesirable 2.The motor doesn't install good 3.Hall bad
Er04:	Lacked-rotor protection	1.The motor overload 2.The motor and the controller connected four hole line contact is not good
Er05:	Hardware over-current Protection	1.The motor overload 2.Signal wire not good or broken
Er07:	Serial per communication	Display to the system board signal bad or bad
Er16:	Overload protection	1. The motor drive power supply voltage is too high, the 220V power supply voltage exceeds the limit value(AC310V), or the load inertia is too large to the regenerative voltage exceeds the limit value(DC440V), or the voltage detection circuit fails. Note:(110V control system power supply voltage exceeds limit

		value(AC155V), or load inertia is too large to regeneration voltage exceeds limit value(DC220V).
Er20 :	Deficiency protection	1. The motor drive power supply voltage is too low, the 220V power supply voltage is lower than the limit value(AC91V), or the motor drive power supply voltage is lower than the limit value(DC130V), or the voltage detection circuit fails. Note:(110 V power supply voltage is below the limit(AC45.5 V), or motor drive power supply voltage is below the limit(DC 65V))

Environmental Requirements

1. Please do not work at damp place
2. The voltage requires being stable 210v-240v
3. Must be adequately grounded for safety
4. Do not work at high temperature
5. Do not run motor and control system near to ferromagnetic or high-radiance area

Service

1. Our products come with year of quality guarantee, from the ship day. Within guarantee period, service is free of charge, unless man-made damage or misuse
2. During the guarantee period, our free service does not cover below:
 - (1). Dismantle the motor unit without permission, and cause damage.
3. Please contact us whenever have problem.

一体机节能直驱使用说明书

欢迎使用本公司产品，制衣行的正确投资选择！

本说明书为本公司新研发的“一体机节能直驱控制箱”产品参考手册，请认真阅读此手册以更好运用本公司产品。

一、安全说明：

- 1: 电机电控接通电源时（开机状态）请不要把脚放在脚踏板上
- 2: 本产品请专业人士安装调试
- 3: 严禁在通电时打开控制箱与电机端盖
- 4: 换针，穿线或更换底线时请关闭电源
- 5: 安装，拆卸维修时请拔掉电源插头
- 6: 翻抬缝纫机时请关闭电源
- 7: 使用本产品请远离高频电磁波和电波发射器等，以免所产生的电磁波干扰伺服驱动器而发生错误动作。

郑重申明：

- 1: 不遵守安全使用说明操作规章，发生意外后果自负。
- 2: 未经本公司授权，请勿擅自改动产品，由此而引起的后果本公司不负任何责任。

二、产品介绍：

本产品由本公司自主研发,产品个性鲜明,真正体现出了机电一体化的概念,更是节能,高效,环保,优美集结于一身。可广泛适用于多种缝设备。

1.组成部分：

1）、控制系统由控制器和电机两部分：

A.控制器:控制箱和脚踏调速器。

本控制系统体现出了超前的设计理念,系统操作简单易上手,整个控制系统性能优越。具有起步快,停车快、准等优点。而且电路模块保护功能完善:有欠压,过流,过热等一系列保护功能。踏调速器可实现无级调速。

B.电机：性能参数指标:Specifications

电源供电电压 Voltage	220V 两相 2 phase
频率 Frequency	
电机转速 Speed	
电机扭矩 Motor torque	

三、控制面板使用说明:

1.系统按键图如下:

序 号	按键图标	功 能 说 明
1	 (菜单键)	按住  键和  键入用户参数，不需要密码。
		按住  键和  键入系统参数，需要密码进入。
2	 (确认键)	参数确定键
3	 (数值调整键)	向上键（修改数据时加）
4	 (数值调整键)	向下键（修改数据时减）
5	 (机头灯调整键)	点动  键，数码管显示 ，机头灯功能开启；再按一下数码管显示 ，机头灯功能关闭。
6	 (停针位调整键)	点动  键，数码管显示区会出现：为上停针；在按一下出现 为下停针；再接按出现 为无停针。

3. 进入参数的操作方法:

例:怎样把电机的顺时针转调到逆时针转第一步:先打打开电;

第二步:先按“P”键不放,再用另一只手按“+”号键,此时画面会显示 **P-00**

第三步:此时按“+”号键,画面会显示 **P-02,(P-02)**就是电机正反转参数(常用参数表上有)。

第四步:此时按“P”键画面会显示“1” 第五步:此时按“-”号键把“1”调到“0”(“1”为顺时针转,“0”为逆时针转,常用参数表上有)。第六步:按“S”键确定参数调整完毕并退出参数。

4. 恢复出厂设置:

恢复出厂设置方法:先按“P”键不放,再用另一只手按“+”号键、此时画面会显示 P-00,再长按“S”键约 3 秒即可,(恢复出厂设置值在常用参数表里)。

四、电机常用参数设置:

序号	参数编号	参数名称	参数范围		出厂设置	备注
1		最大速			4500 转	
2		电机方向	0 是逆 针转	1 是 顺时针 转	1	
3		下停角	6-18 度		12 度	
4		起缝速度	200-800 转		250 转	
5		加速快慢	2000-4000 转		3500 转	
6		定针缝	0-999 针		0	
7		空				
8		空				
9		空				
10		自动间隙运行(跑合)	把 0 把改成 1 再按 S 键		0	关掉电源停止跑合
11		抬压脚起动时间			0	
12		抬压脚保护时间				
13		最大电流限制	50-1000		280	
14		是否检测上针位	1: 检测针位 0: 不检测		1	
15		是否检测上针位	1:检测针位, 0:不检测		1	
16		复位出厂密码	1-3		1	P-09 参数开启后才能出现

					P-17 参数、设为 3 长按 OK 键恢复出厂密码
17		出厂密码	0000-9999	2013	
18		软起动针数	0-15	0	0 针关闭该功能,1-15 针时启用软启动, 并设定针数 (上停针时有效)
19		软起动速度	200-3500	800	
20		吸气功能	0:关闭 1:开启	1	电机运转时开启/ 关闭吸气功能
21		吸气开启针数	1-200	30	吸气打开针数(P23 针数打时有效)
22		吸气关闭针数	0-200	0	
23		吸气动作维持时间			此参数暂时不用
24		吸气全功率时间			
25		吸气全功率时功率	5-100%	100%	
26		吸气维持功率	1-100%	80%	
27		吸气释放时间			
28		吸气保护时间			吸气单次动作最长时间
29		压脚触发模式	0:关闭 1:开启	0	1.设为 0 时, 后踏速控器压脚不抬。设为 1 时后踏速控器压脚抬起, 2.维持抬起, 直到前踏或保护时间到才会释放压脚, 并且每次电机停止时自动抬压脚
30		后抬脚启动时间		0	后踏延迟启动压脚的时间
31		抬压脚动作维持时间			此参数暂时不用
32		抬压脚全力功率时间			
33		抬压脚全力功率时功率	5-100%	100%	
34		抬压脚维持功率	1-500%	80%	
35		抬压脚释放时间			压脚释放时间
36		抬压脚保护时间			压脚单次抬起最大维持时间

37		显示速度			显示当前电机实际速度
38		显示速控器电压	14-1010	中点电压 195	显示当前速控器电压 0—1024，相当于 0-5V
39		显示直流母线电压			当电压高于 395 会报警，(直流母线电压/1.414=交流母线电压)
40		过压保护开关	0:关闭 1:开启	1	设为 0 关闭过压报警，设为 1 打开报警，当直流母线电压超过 395V 时，报警 Er16，电机自动停止运行，报警后当电压低于 385v 电机可再次运行

五、一般故障处理:

序号	错误码	错误码	错误内容	错误问题的多种可能
1	Er01:		找不到停车位	1.定位器信号插头未插好 2.定位器感应位置靠近一点与磁铜(1mm-15mm)距离
2	Er02:		开机没有检测到调速器	1.调速器插头没有插 2.调速器线断了
3	Er02:		电机霍尔或相位线错误	1.九针插头接触不良: 2.电机没有安装好: 3.霍尔坏:
4	Er04:		堵转保护	1.电机过载 2.电机与电控根连接的四心线接触不好
5	Er05:		硬件过流保护	1.电机过载 2.信号线接触不好或断了
6	Er07:		串口通信时错误	显示屏至主板信号线不良或主板坏
7	Er16:		过压保护	1.电机驱动电源电压过高，220V 电源电压超过限定值（AC310V），或负载惯性过大导致再生电压超过限定值 (DC440V),或电压检测回路故障。 注：（110V 控制系统电源电压超过限定值（AC155V），或负载惯性过大导致再生电压超过限定值(DC220V)。
8	Er20:		欠压保护	1.电机驱动电源电压过低，220V 电源电压低于限定值（AC91V），或电机驱动电源电压低于限定值（DC130V），或电压检测回路故障。

				注：（110V 电源电压低于限定值（AC45.5V）， 或电机驱动电源电压低于限定值（DC65V））
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六、作业环境要求：

- 1.请不要在过潮湿环境中作作业
- 2.用户供电应保持稳定 210V-240V
- 3.用户使用前必须接地,确保人身安全
- 4.不要在过热地方作业
- 5.控制系统与电机不要在强磁高辐射环境中作业,以免干扰而使系统错误

七、保修服务:Service

- 1.本产品自购买起免费保修 1 年,终身维护。保修期内除人为损坏以外出现任何质量问题可免费维修。
- 2.在保修期内,以下情况出现损坏本公司不给予保修服务。
 - (1).未经本公司同意自行拆卸,修理,改装造成的故障或损坏。
- 3.但凡出现无法解决的问题可以联系
本公司。

NOTES

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Dealer:

