

F10—781D 步进使用说明书

前言

Preface

欢迎使用本公司产品，制衣行的正确投资选择！

Welcome to use the our products, it is the right investment choices in garment industry!

本说明书为本公司新研发的“分体多功能控制箱”产品参考手册，请认真阅读此手册以更好的运 用本公司产品！

This user manual is for our newly developed “Multi-function box” products reference manual, Please read this manual carefully, hope it can give you useful help!

阅读本说明前以下要求说明请注意：

Before reading the manual, please note the following requirements:

1: 用户使用作业前必须可靠接地，保证人生安全！

The user must be grounded before operations to ensure safety

2: 非专业人士请勿拆卸控制箱

Non-professionals do not disassemble the control box

3: 控制箱与电机远离强磁高辐射环境

The control box and motor away from the magnetic high radiation environment

4: 不要在过热环境中作业

Do not work in hot environment

5: 不要在过于潮湿环境中作业

Do not work in humid environments

6 : 220V 电控：【220V 接入供电时电压稳定在 (AC200V~260/单相) 之间】

220V electronic control: [220V access to power supply voltage stability between (200V~260V)]

电源供电电压 Voltage	220V 单相 1 phase
频率 Frequency	50~60HZ
电机转速 Speed	200-4000RPM
电机扭矩 Motor torque	$\leq 3.5\text{N.M}$

110V 电控：【110V 接入供电时电压稳定在 (AC100V~130/单相) 之间】

110V electronic control: [110V access to power supply voltage stability between (100V~130V)]

电源供电电压 Voltage	110V 单相 1 phase
频率 Frequency	50~60HZ
电机转速 Speed	200-4000RPM
电机扭矩 Motor torque	$\leq 3.5\text{N.M}$

安全叮嘱:

Safety requirement:

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

Do not put your feet on the pedals when the control box and motor is switched on (boot status)

2: 本产品请专业人士安装调试

Let professionals to install and debug this product

3: 严禁在通电时打开控制箱与电机端盖

Do not open the control box and the motor cover when energized

4: 换针, 穿线或更换底线时请关闭电源

Please turn off the power when changing the needle,threading or replacing the bottom line

5: 安装, 拆卸维修时请拔掉电源插头

During installation and removal service,please turn off the power and pull the plug

6: 翻抬缝纫机时请关闭电源

Please turn off the power when turn lift sewing machine

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。

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 .

郑重申明:

Solemnly Declare:

1 : 不遵守安全使用说明操作规章, 发生意外后果自负。

Do not comply with the manual book operating regulations and the safety requirements, all accidental occurrence should be taken by yourself.

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。

Without our authorization, please do not alter our products, our company is not liable for any consequences arising therefrom.

保修策略:

Warranty policy:

1: 本产品自购买起免费保修 2 年, 终身维护。保修期内除人为损坏外出现的任何质量问题可免费修

Since from the purchase of this product,the free 2-year warranty,lifetime maintenance. During the warranty period,any quality problems the product will be free repaired,except artificial damage.

2: 未经本公司同意自行拆卸, 改装造成损坏将不给予保修

Without our consent disassemble or modify,the damaged will not give in warranty

3: 但凡出现无法解决的问题可以联系本公司

Whenever find the problem can not be solved,you can contact with our company

目录

Contents

一、显示屏常用操作介绍

Introduction of display screen common Operation

二、如何进入参数与如何修改参数

How to enter parameters and how to modify the parameters

三、操作参数说明表：

Operating Parameter Description Table

四、控制箱端口说明

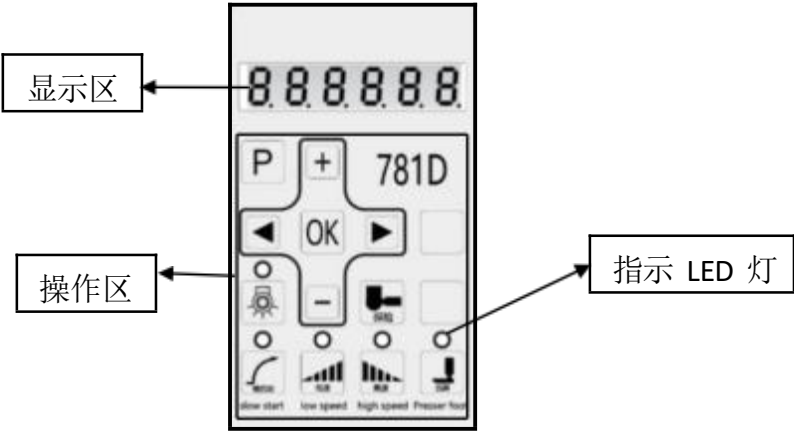
Controller box port description

五、错误代码解析

Error code analysis

一、显示屏常用操作介绍：Introduction of display screen common Operation 1.

显示屏介绍如下：



2.功能介绍：



序 号 No. 1	按 键 图 标 Button Icons	功 能 说 明 Function Description
1		进入参数调整辅助键，可与() () 键配合使用，不同配合将进入不同参数列表 Enter parameter adjustment Secondary key, together with () or () using, different Combination into different Parameter List
2		参数确定保存键 Parameter determines the Save button
3		“+” 键 (修改参数时加) “+” button (modify the parameters plus)
4		“- ” 键 (修改参数时减) “- ” button (modify the parameters minus)
5		向左键 (在参数列表中用来返回上一页面用) In the parameter list to return to the previous page
6		向右键 (在参数列表中进入参数调整用) In the parameter list to enter the parameter for adjustment
7		机头 LED 灯开关键 ※： 功能开启时按键上方的 LED 将亮起，功能关闭时按键上方的 LED 将熄灭， Machine head LED light On or Off key ※： when the function is open, the upper key led light is on; when the function off, the upper key led light is off. 。

8		慢启动功能键 ※： 功能开启时按键上方的 LED 将亮起，功能关闭时按键上方的 LED 将熄灭。 Slow start function keys ※： when the function is open, the upper key led light is on; when the function off, the upper key led light is off.
9		长按保险键：输入密码 (****)  键进入调整保险电磁铁参数， 进入参数后对当前参数进行调整。(按一下  键进入参数项数值修改界面， 按  或  键调整参数值， 按  键确定保存参数并退出主界面)
10		短按低速键：指示灯亮起时， 按  或  键调整低速快慢
		长按低速键：输入密码 (****)  键进入锁定低速速度。 按
11		短按高速键：指示灯亮起时， 按  或  键调整高速快慢
		长按高速键：输入密码 (****)  键进入锁定高速速度。 按
12		长按压脚键：输入密码 (****)  键进入调整保险电磁铁参数， 进入参数后对当前参数进行调整。(按一下  键进入参数项数值修改界面， 按  或  键调整参数值， 按  键确定保存参数并退出主界面)

二、如何进入参数与如何修改参数

How to enter parameters and how to modify the parameters

系统参数进入解析：

1. 按住 () 键加上 () 键将进入 “系统参数”列表(需要密码.2014 进入调整，按  进入)。

2. 按住 () 键加上 () 键将进入 “用户参数”列表(无须密码) 进入后可看见系统参数编号，此时

可以用()() 键，切换参数编号， 在需要修改的编号前按() 键，将进入当前参数进行调整，
可按()() 键对当前参数进行加减操作。

3.修改完毕参数后需要按() 键保存参数并退出系统参数调节 。或按() 键退回上一个页面进行
其 他参数修改。操作方法和上面一样。 操作完毕后必须按() 键进行保存， 否则修改的参数将会是无效。

注： 以上是进入方法，具体参数号代表的参数意思详情如下 “3.操作参数说明表”

System parameters entering analysis:

1.Together touch  and  enter into “System parameters” list (need code: type

2014 enter into adjustment, press )

2.Together touch  and  enter into “User parameters” list (No need password).

After entering the system parameters number can be seen, then you can use () () key to
transfer the parameter number, when you find the needed modify number, then touch ()
key to enter into the current parameters, touch ()() to adjust it.

3. After finish modification then touch () to save the modification and exit. Or you can touch
() to return back page system parameters number to modify. Method of operation is the same
of above. After change finish, should be touch () to save the modification, otherwise modify
the parameters will be invalid.

Note: the upper is entry method, specific parameters No. on behalf of the parameters meaning as follows: “三： Operating Parameter Description Table”

”

三：操作参数说明表： Operating Parameter Description Table

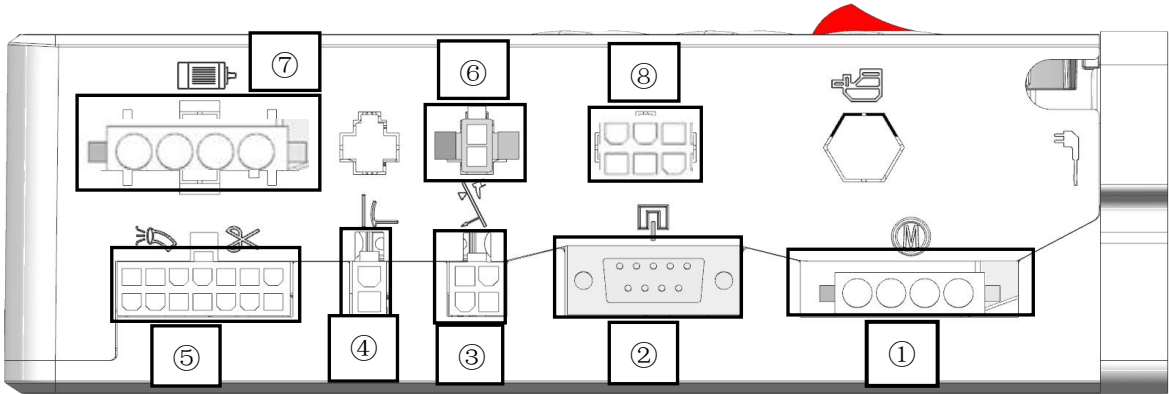
菜单号 System parameter list	功能说明 Function Description	功能参数默认值 Function parameter default values	功能参数范围 Function parameter ranges	参数说明 Parameter Description
P1	最大缝纫速度 MAX Sewing speed	2600	200 ~ 4000	转 / 分钟 Round / Minute
P2	起缝速度 Start sewing speed	800	150 ~ 800	转 / 分钟 Round / Minute
P11	慢启动选择 Slow Start Selection	1	0 — 1	0: 禁用 1: 启用 0: Disable 1: Enabled
P12	慢启动针数 Slow start Stitches number	3	1 — 30	针数 Stitch number
P13	慢启动速度 Slow start speed	800	200 — 800	转 / 分钟 Round / Minute
P16	步进抬压脚速度 Stepper presser foot lifting speed	300	5 - 350	
P18	步进放压脚速度 Stepper presser foot releasing speed	120	5 - 350	
P21	恢复出厂设置 Restore factory setting	0	0-1	
P22	电机驱动方向 Motor drive orientation	1	0 — 1	0: 逆时针 1: 顺时针 0: Counterclockwise 1: Clockwise
P23	显示当前速度 Displays the current speed	0		显示当前的电机转速 Displays the current motor speed
P24	显示调速器电压 Display foot controller voltage	0		显示调速器输出电压 Display foot controller output voltage
P25	自动磨合运行 Automatic running-in operation	0	0 — 1	0: 关闭 1: 启动 0: OFF 1: ON
P31	剪线角度 1 Trimming angle 1	20		度 degree
P32	剪线角度 2 Trimming angle 2	20		度 degree
P33	剪线角度 3 Trimming angle 3	20		度 degree
P34	上停角度 Up needle stop angle	0		度 degree
P35	下停角度 Down needle stop angle	180		度 degree
P36	剪线延时启动时间 Trimming delay starting time	5	0 — 2000	毫秒 Millisecond
P37	步进松线行程 Stepper thread releasing distance	200		
P38	步进松线速度 Stepper thread releasing speed	400		

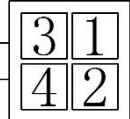
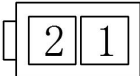
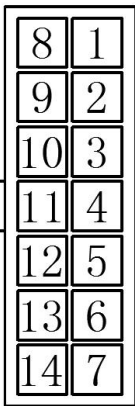
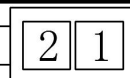
P40	松线动作维持功率调整 Thread releasing action maintain power adjusting	45	1 — 100	百分比 Percentage
P41	松线动作释放保护时间 Thread releasing action releasing protection time	35	20 — 800	毫秒 Millisecond
P43	剪刀动作复位开关使能 Scissors action reset switch enable	1	0 — 1	0: 禁用 1: 启用 0: Disable 1: Enabled
P46	拨线动作延时启动时间 Thread hooking delay start time	40		毫秒 Millisecond
P47	拨线动作维持时间 Thread hooking action maintain time	70		毫秒 Millisecond
P48	拨线全功率时间 Thread hooking full power time	70		毫秒 Millisecond
P49	拨线全功率率 Thread hooking full power	100		
P50	拨线维持功率 Thread hooking maintain power	50		
P51	拨线释放时间 Thread releasing time	50		毫秒 Millisecond
P52	拨线保护时间 Thread hooking protection time	1		毫秒 Millisecond
P53	拨线保护开关使能 Thread hooking protection switch enable	0		
P54	拨线动作模式 Thread hooking action mode	0		
P55	预留 reservation	0		
P56	压脚动作延时启动时间 Foot-lifter action delayed start time	110	0 — 2000	毫秒 Millisecond
P57	步进抬压脚行程 Stepper presser foot lifting stroke	950		
P58	压脚动作全功率时间 Foot-lifter action time at full power time	200	10 — 990	毫秒 Millisecond
P59	步进动作功率 Stepper motor action power	75		
P60	步进保持功率 Stepper motor maintain power	30		
P61	压脚释放时间 Presser foot releasing time	2	1 — 900	毫秒 Millisecond 注: 1.当压脚放下时, 运行电机需要的延时时间 2.当 63 号参数打开时保护开关起作用不需要延时。
P62	压脚保护时间 Presser foot protection time	90	1 — 120	秒 Second
P63	步进原点信号使能 Stepper original signal enable	1	0-1	0: 关闭 1: 启动 0: OFF 1: ON

P65	半后踏抬压脚延时启动时间 Half-back step pedal foot lifter delay start time	5	0 — 2000	毫秒 Millisecond
P66	关闭急停 Sudden stop off	0		
P67	关闭掉电和过压检测 Power down and overvoltage detection off	0		
P68	断线保护开关 Thread broken protection switch	0	0-1	0: 关闭 1: 开启 0: off 1: on
P69	步进电机最大速度设置 Stepper maximum speed setting	3000		
P70	电机最大电流限制 Motor max electric current	320	50 — 600	
P71	最高速度锁定 Maximum speed lock	3000	200 — 4000	转 / 分钟 Round / Minute
P72	系统密码 System Password	2014		
P73	断线保护时间 Thread broken protection time	1	1-2000	毫秒 Ms

四：控制箱端口说明

The control box Port Description



端口序号 The port number	端口连接的器件名称 Port device name for the connection	端口说明 Port instruction		
①	连接电机 4 线驱动线 connect motor 4P drive line			
②	连接电机相位信号线 Connect the motor phase signal line			
③	脚踏板端口，连接调速器 Foot pedals port , connect foot controller		1:2:3:4	1:GND 2:GND 3:信号 Signal 4:5V
④	抬压脚控制端口,连接压脚电磁铁或电磁阀 Presser foot control port, connect the presser foot solenoid or solenoid valve		2:1	2:GND 1:34V
⑤	14P 多功能端口 14p multi function port		预留 Reservation	1:8 1:34V 8:剪刀输出:Scissors output
			预留 Reservation	2:9 2:34V 9:拨线输出:Suction output
			断线保护 Thread broken protection	3:11:13 3:5V 6:信号 Signal 13:GND
			大盘安全开关 origin safety switch	4:7:14 4:5V 7:信号 Signal 14:GND
			预留 Reservation	5:12 5:34V 12:吸气输出: Presser foot output
			地 Ground	10 大地 Ground
⑥	LED 机头灯插孔 head LED socket		2:1	2:5V 1:GND
⑦	连接步进电机 4P 驱动线	步进电源端口 Motor power plugs		
⑧	连接步进电机相位信号线	步进信号端口 Motor signal plug		

五：错误代码解析 ： Error code analysis

错误代码 Display error code	错 误 码 意 思 Error code meaning	错误的产生 Various possible for the erro	解决错误 Solution
ER-01	找不到停针位 Not find needle position	1:手轮和电机靠的不够近 2: 手轮上磁钢脱落 3: 手轮磁铁极性装反 4: 九针端子头接触不良 5: 电机霍尔损坏, 跟换电机 1 : Hand wheel and motor 2 : Hand wheel magnet off 3 : Hand wheel magnet polarity reversal 4: Nine-pin terminal head Poor contact 5 : Motor hall damaged, with the change motor	1: 检查电机信号线有无松动 2: 更换手轮 3: 更换电机 1: check whether the motor signal line is loose 2:replace the wheel 3: replace the motor
ER-02	脚踏板信号错误 Foot controller signal error	1: 开机时没插调速器 2: 调速器插反 3: 调速器线断开 4: 调速器损坏 1 : Not plugged foot controller into control box 2: foot controller inserted upside 3: foot control box line broken 4: foot controller damage	1: 检查调速器信号线 2: 更换调速器 3: 更换控制器 1: check the foot controller signal line 2: change the foot controller 3: replace the foot controller
ER-03	电机相位信号错误 Motor phase signal error	1: 九针插头接触不良 2: 电机安装时霍尔和转子存在大偏差 3: 电机霍尔坏 1: Nine-pin terminal plug Poor connect 2: Hall and rotor has large deviations when the motor is mounted 3: Motor hall damage	1: 打开电机上的橡皮盖通过孔看电机转子与定子是否在同一平面保障误差超过 1MM 2: 更换电机 3: 更换控制器 1: open the rubber cover on the motor through the hole to see whether the motor rotor and stator in the same surface to ensure the error is not more than 1MM 2:replace the motor 3: replace the control box

ER-04	电机堵转保护 Motor stall protection	1: 缝纫机过重或堵死 2: 电机过载 3: 电机 4 线驱动线没连接好或插反 1: Sewing machine overweight or blocked 2: Motor overload 3: 4-wire motor drive cable is not connected or inserted upside	1: 检查电机 4P 线 2: 检查缝纫机是否过重 3: 更换控制器 1: check motor 4P line 2: check whether the sewing machine is too heavy 3: replace the controller
ER-05	硬件过流保护 Hardware over current	1: 缝纫机过重或堵死 2: 电机过载 3: 电机相位信号线没连接好 4.功率管损坏 1: Sewing machine overweight or blocked 2: Motor overload 3: Motor phase signal line is not connected 4: Power tube damage	
ER-07	串口通讯超时 Serial communication timeout	1: 显示屏连接主板线连接不良 2: 主板芯片损坏 1: Display bad cable connection Motherboard 2: Motherboard chip damage	1: 检查显示屏与控制器连接线 2: 检查控制器是否还可运行, 如不能运行就是控制器损坏 3: 检查机器旁是否有高频机器干扰 4: 更换显示屏 1: Check the connection line between the display screen and the control box. 2: check whether the controller run well, if not, controller damage 3: check whether there is a high frequency machine near the machine interference 4: change the display panel
ER-09	存储器不良 Poor memory	1: 主板存储器损坏或不良 1: Motherboard memory corruption or bad	1: 控制器损坏 1: control box damage
ER-11	断线报警 Thread broken error	1: 断线 1: Thread broken	1: 检查棉线是否正常穿线 2: P68 调为 0 1: Check the thread 2: Adjust P68 to 0

ER-13	步进电机未复位 Presser foot sensor no signal	1: 步进电机原点没有复位 1: The original of the stepper motor do not reset	1: 检查步进电机是否堵转 2: 松开步进电机轴螺丝, 重新开机复位 3: 更换步进电机 4. 更换电控 1: Check the stepper motor if stuck 2: Release the screw of the stepper motor axis, restart the controller box to reset. 3: Change the stepper motor 4: change the display panel
ER - 14	复位传感器找不到针位 Reset sensor can not find the needle position	1: 大盘传感器损坏 2: 传感器感应磁铁脱落或装反 1: The sensor on is damaged 2: Magnet Fall or installed backwards	1: 更换转盘传感器 2: 检查手轮上磁铁脱落或装反 3: 检查电机停车霍尔损坏是否损坏 4: 更换电控 1: Change the sensor 2: Check if the hand-wheel magnetic poles wrong setting 3: Check if the sensor of the motor damaged 4: Change the controller
ER - 15	9700 错误信号 9700 error signal	1: 9700 编码器损坏 1: 9700 encoder is damaged	更换电控 Change the controller
ER-16	过压 Over load	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。(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)。 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).	
ER-20	欠 压 故 障 Under voltage error	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)) 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))	