

中 文
ENGLISH

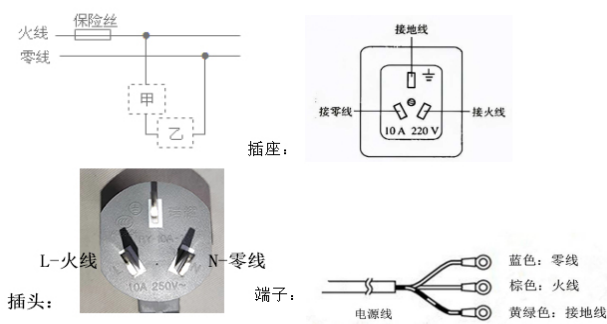
B-1M

使用说明书（电控箱・操作面板）

INSTRUCTION MANUAL
(CONTROL BOX・PANEL)

⚠安全指示

- 1) 在安装或使用本产品前，使用者必须详细阅读本操作手册。
- 2) 本产品须由受过正确训练的人员来安装或操作。安装作业时必须关闭所有电源，切记不可带电操作。
- 3) 所有标有⚠符号的指示，必须特别注意并按照说明书上的执行，以免造成不必要的损害。
- 4) 为安全起见，禁止以延长线作电源座供应二项以上的电器产品使用。
- 5) 在连接电源线时，必须确定工作电压符合本产品标识中规定的额定电压值。
- 6) 请不要在日光直接照射的场所、室外及室温 45℃ 以上或 0℃ 以下的场所操作。
- 7) 请不要在暖气（电热器）旁、有露水的场所及在相对湿度 10% 以下或 90% 以上的场所操作。
- 8) 请不要在灰尘多的场所、具有腐蚀性物质的场所及有挥发性气体的场所操作。
- 9) 请注意所有电源线、信号线、接地线等接线时不要受压或过度扭曲，以确保使用安全。
- 10) 电源线的接地端须以适当大小的导线和接头连接到生产工厂的系统地线，此连接必须被永久固定。



- 11) 所有可转动的部分，必须以所提供的零件加以防范露出。
- 12) 在安装完成第一次通电后，先关闭切线功能以低速操作缝纫机并检查转动方向是否正确、运转是否稳定。
- 13) 在进行以下操作前，请先关闭所有电源：
 1. 在控制箱与马达上插拔任何连接插头时。
 2. 穿针线时。
 3. 翻抬缝纫机机头时。
 4. 修理或做任何机械上的调整时。
 5. 机器闲置不用时。
- 14) 关机后请等待 5 秒以上才能再次开机。
- 15) 修理或高层次的保养工作，仅能由受过训练的机电技师来执行。
所有维修用的零件，须由本公司提供认可，方可使用。
- 16) 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装置而发生误动作。
- 17) 请不要以不适当物体来敲击或撞击本产品及各装置。

保修期限

本产品保修期限为购买日期起一年内或出厂月份起两年内。

保修内容

本产品在正常情况使用且无人为操作失误的前提下，于保修期间无偿为客户维修使能正常操作。





但以下情况于保修期间将收取维修费用：

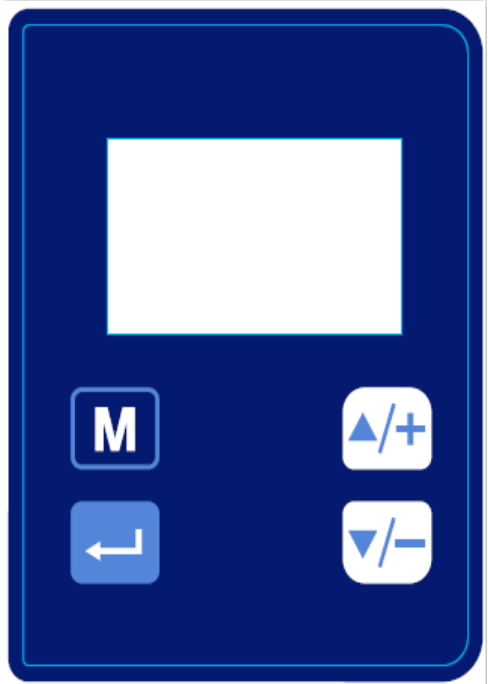
1. 不当使用包括误接高压电源、将产品移做其它用途、自行拆卸、维修、更改、或不依规格范围使用、进水进油及插入异物于本产品。
2. 火灾、地震、闪电、风灾、水灾、盐蚀、潮湿、异常电压及其它天灾或不当地所造成的损害。
3. 客户购买后摔落本产品，或客户自行运输（或托付运输公司）造成的损害。

* 本产品在生产及测试上皆尽最大努力和严格控制使其达到高品质及高稳定的标准，但外部的电磁或静电干扰或不稳定的供应电源，仍可能对本产品造成影响或损害，因此操作场所的接地系统一定要确实做好，并建议用户安装故障安全防护装置（如漏电保护器）。

1 按键显示与说明及操作说明







1.1 按键显示说明

名称	按键	注明
回车键		若点击，锁机/解锁。(待机界面) 若点击，对所选参数号内容进行查看和保存：选择好参数号后按此键可以进行查看和修改操作，修改参数值后按此键则退出并保存参数。(参数界面)
M 键		若点击，进入或退出用户参数设定界面。 在关机状态，按住 M 键开机进入技术员参数模式。
上键		若点击，增加参数值。(参数界面) 若长按，连续增加参数值。(参数界面) 若点击，增加速度值。(待机界面) 若长按，连续增加速度值。(待机界面)
下键		若点击，减少参数值。(参数界面) 若长按，连续减少参数值。(参数界面) 若点击，减少速度值。(待机界面) 若长按，连续减少速度值。(待机界面)



1.2 操作说明




1.2.1 恢复出厂设置

按住  和  键，同时开机，显示 RST，按  确认，显示 OFF，按  或  改为 ON，按  确认，待显示 RST 后关机重启。

1.2.2 步进电机调试模式

在关机状态下，将大盘调至原点位置。长按  和  开机，显示主界面。然后长按  进入调试模式，显示 N-01。

1.2.3 锁定与解锁




在主界面下短按  可切换锁定与解锁电机，开机默认在锁定状态。当锁定时，界面呈现 LOCK，压脚踏下，反脚踏板可抬起压脚，前脚踏板则机器无反应，按 、 可修改运行速度。当解锁时，界面呈现动态的零，若此时机器处于原点位置则压脚抬起，半前脚踏板可落下压脚，前脚踏板可启动机器；若不在原点位置，可前脚踏板让机器运行一次，机器会停在原点位置。

2 用户参数&技术员参数

2.1 用户参数

参数项	中文说明	范围	初始值	内容值名称说明与备注
P01	高速运行转速 (spm)	100-3600	3000	车缝时的高速转速设定
P02	低速运行转速 (spm)	100-3600	2000	车缝时的低速转速设定
P03	切刀动作速度	100-1000	800	切刀时机头的转速
P04	第一针限速	100-3600	800	
P05	第二针限速	100-3600	800	
P06	第三针限速	100-3600	2000	
P07	第四针限速	100-3600	2500	
P09	压脚保护时间	1-600	5	

2.2 技术员参数

参数项	中文说明	范围	初始值	内容值名称说明与备注
P13	步进电机零点补偿	-100~100	0	微调步进电机机械原点位置
P14	主轴电机零点校正			在参数调节界面按  ，主轴电机会自动找零点，待完成后按  保存
P15	停车保护针数	1-990	30	在大盘未感应到停车信号情况下，机针要动作多少针进行保护
P16	减速保护针数	1-990	300	在大盘未感应到减速信号情况下，机针要动作多少针进行保护
P17	开机自动找上定位	0-1	1	0: 无作用 1: 开启电源后，自动找到上定位信号后停止
P18	上定位调整	1-2400	90	上定位调整，数值减少时会提前停针，数值增加时会延迟停针
P19	测试工作时间 (0.1s)	1-250	20	C 项测试中，设置导通时间
P20	测试停止时间 (0.1s)	1-50	20	B 和 C 项测试中，设置停车时间
P21	A 项测试	ON/OFF	OFF	A 项测试选项，设定后将按 P01 速度进行连续运转测试
P22	B 项测试	ON/OFF	OFF	B 项测试选项，设定后将按 P01 测试速度进行全功能性测试
P23	C 项测试	ON/OFF	OFF	C 项测试选项，设定后将按 P01 的速度进行无定位运行
P24	机头保护开关	0-1	1	0: 关闭 1: 开启
P25	停车速度	100-500	210	
P26	最大速度	100-3600	3600	
P27	上定位快捷调整	0-2400		调整上停针位，显示的数值会随手轮位置变化而变化，按  键可保存当前位置（数值）为上停针位
P28	最高压脚高度	0-2400	500	启动时压脚抬起的高度 注：高度值为脉冲值，2400 代表步进电机转过 360°
P29	压脚速度	20-400	200	
P30	锁机抬压脚开关	0-1	0	开启时，锁机状态下，可反踏抬压脚
P31	踏板前踩运行位置	30-1000	700	高速启动位置
P32	踏板回中位置	30-1000	420	
P33	踏板半前踩位置	30-1000	600	低速启动位置
P34	踏板反踏位置	30-1000	130	

P35	老化跑合时间	0-9999	0	
P36	结束锁眼压脚状态	0-1	0	0: 关闭 1: 开启

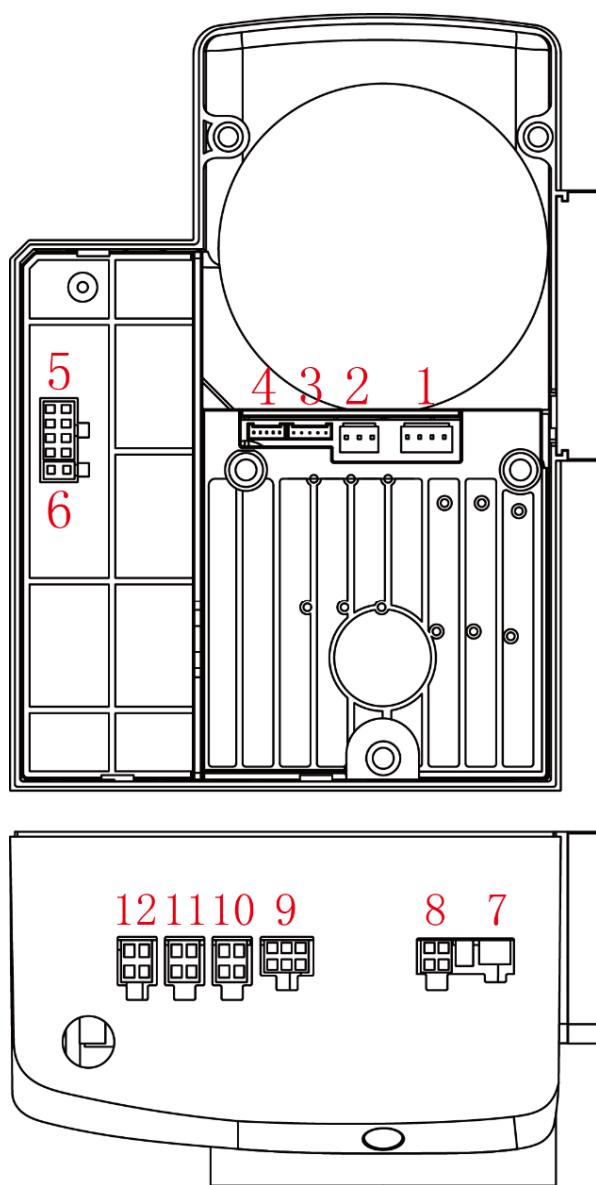
注：参数初始值仅供参考，实际参数值以实物为准。

3 错误代码表

错误码	内容	对策
E01	电压高	1. 电网电压是否高于 AC260V； 2. 如果是自行发电供电，请降低发电机功率； 3. 若仍不能正常工作，请更换控制箱并通知售后服务。
E02	电压低	1. 是否插入低电压； 2. 恢复出厂设置； 3. 若仍不能正常工作，请更换控制箱并通知售后服务。
E03	CPU 通信异常	1. 关闭系统电源，检测显示屏的连线是否松动或脱落，将其恢复正常后重启系统。 2. 关闭系统电源，拆下电控箱只插电源线通电，是否报警 E05，如还是报警 E03，更换控制箱并通知售后服务。
E05	控速器信号异常	1. 检查控速器接头是否松动或脱落，将其恢复正常后重启系统。 2. 若仍不能正常工作，请更换控制箱或控速器并通知售后服务。
E07	主轴电机堵转	1. 关闭电源，检查手轮是否可以顺畅转动（手转手轮），如果无法转动请排查机械； 2. 关闭电源，检查电机电源接口是否松动，插好后重启； 3. 检查上停针位是否正确，如果不正确请调整上定位位置； 4. 若仍不能正常工作，请更换控制箱或主轴电机并通知售后服务。
E10	电磁铁过流	1. 拔除电磁铁接口，如报警 E10，更换控制箱并通知售后服务。 2. 如果拔除电磁铁接口后不再报警，请插回接口。
E11	主轴电机编码器定位信号异常	1. 关闭系统电源，检查主轴电机编码器接口是否松动或脱落，将其恢复正常后重启系统。 2. 检查电机零点校正设置是否正确；重新设置电机零点校正，编码器码盘是否有油，如果有请清理干净； 3. 若仍不能正常工作，请更换控制箱或主轴电机并通知售后服务。
E14	主轴电机编码器信号异常	1. 关闭系统电源，检查主轴电机编码器接口是否松动或脱落，将其恢复正常后重启系统。 2. 检查光栅安装是否正确（光栅螺丝有没有固紧，光栅是不是在编码器头居中位置）； 3. 检查光栅码盘是不是有油，如果有，请清理干净，复原后重启系统； 4. 若仍不能正常工作，请更换控制箱或主轴电机并通知售后服务。
E15	主轴电机驱动过流	1. 请检查电机电源线有没有接触不良； 2. 请检查电机电源线有没有被压破； 3. 请更换控制箱或主轴电机并通知售后服务。
E17	机头翻倒	1. 关闭系统电源，检查机头是否翻倒； 2. 检查机头保护开关检测设置是否正确； 3. 若仍不能正常工作，请更换控制箱或面板并通知售后服务。  点击  可单次取消报警。
E19	大盘降速感应器没到正确位置	检查大盘位置是否正常，降速感应器是否有损坏。

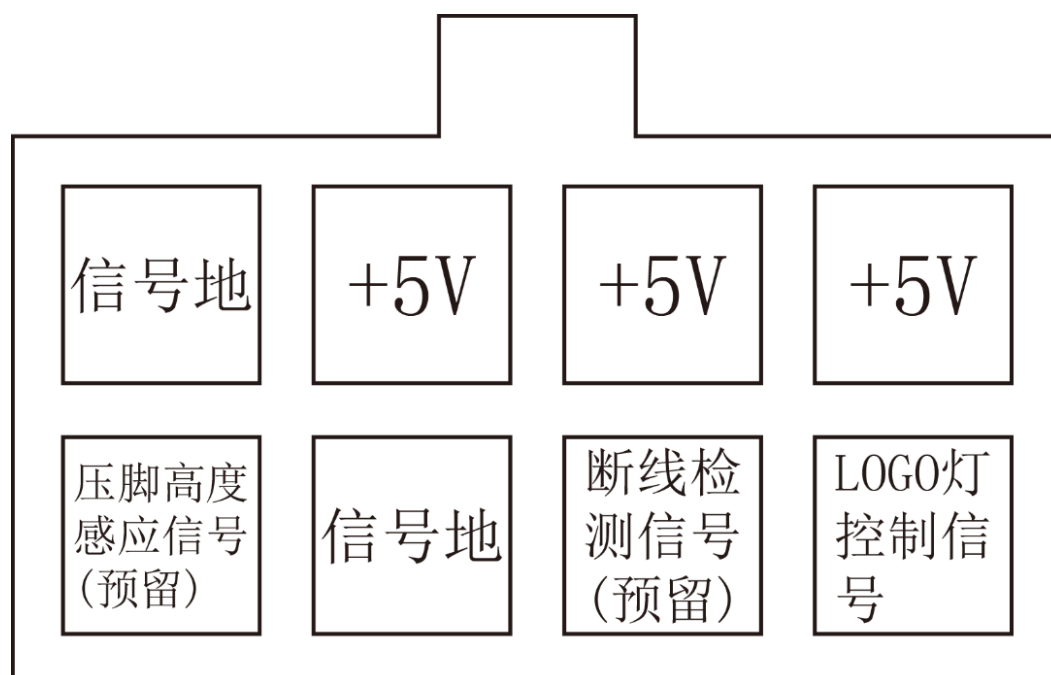
E20	大盘停车感应器没到正确位置	检查大盘位置是否正常，停车感应器是否有损坏。
E82	步进电机过流	<ol style="list-style-type: none"> 1. 关闭系统电源，观察步进电机是否卡住。如卡住则先排除机头机械故障。如正常，检查步进电机接口是否松动或脱落，将其恢复正常后重启系统。 2. 若仍不能正常工作，请更换控制箱或步进电机并通知售后服务。
E84	步进电机编码器定位信号异常	<ol style="list-style-type: none"> 1. 关闭系统电源，观察步进电机是否卡住。如卡住则先排除机头机械故障。如正常，检查步进电机编码器接口是否松动或脱落，将其恢复正常后重启系统。 2. 检查光栅安装是否正确（光栅螺丝有没有固紧，光栅是不是在编码器头居中位置）； 3. 检查光栅码盘是不是有油，如果有，请清理干净，复原后重启系统； 4. 若仍不能正常工作，请更换控制箱或步进电机并通知售后服务。
E85	步进电机编码器信号异常	<ol style="list-style-type: none"> 1. 关闭系统电源，检查步进电机编码器接口是否松动或脱落，将其恢复正常后重启系统。 2. 检查光栅安装是否正确（光栅螺丝有没有固紧，光栅是不是在编码器头居中位置）； 3. 检查光栅码盘是不是有油，如果有，请清理干净，复原后重启系统； 4. 若仍不能正常工作，请更换控制箱或步进电机并通知售后服务。
E86	步进电机启动失败	<ol style="list-style-type: none"> 1. 关闭系统电源，检查步进电机编码器接口是否松动或脱落，将其恢复正常后重启系统。 2. 检查光栅安装是否正确（光栅螺丝有没有固紧，光栅是不是在编码器头居中位置）； 3. 检查光栅码盘是不是有油，如果有，请清理干净，复原后重启系统； 4. 若仍不能正常工作，请更换控制箱或步进电机并通知售后服务。
E87	步进电机堵转	<ol style="list-style-type: none"> 1. 关闭系统电源，观察步进电机是否卡住。如卡住则先排除机头机械故障。如正常，检查步进电机电源线接口、编码器接口是否松动或脱落，将其恢复正常后重启系统。 2. 若仍不能正常工作，请更换控制箱或步进电机并通知售后服务。

4 端口示意图

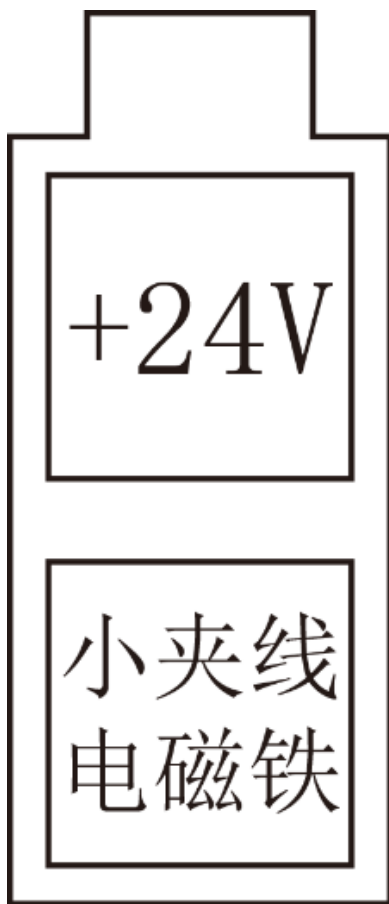


1	伺服电机端口
2	步进电机端口
3	伺服电机编码器端口
4	步进电机编码器端口
5	功能端口1
6	功能端口2
7	控制箱烧录端口
8	脚踏板端口
9	大盘感应端口
10	底线检测端口
11	拖布盘感应端口
12	吹气阀端口

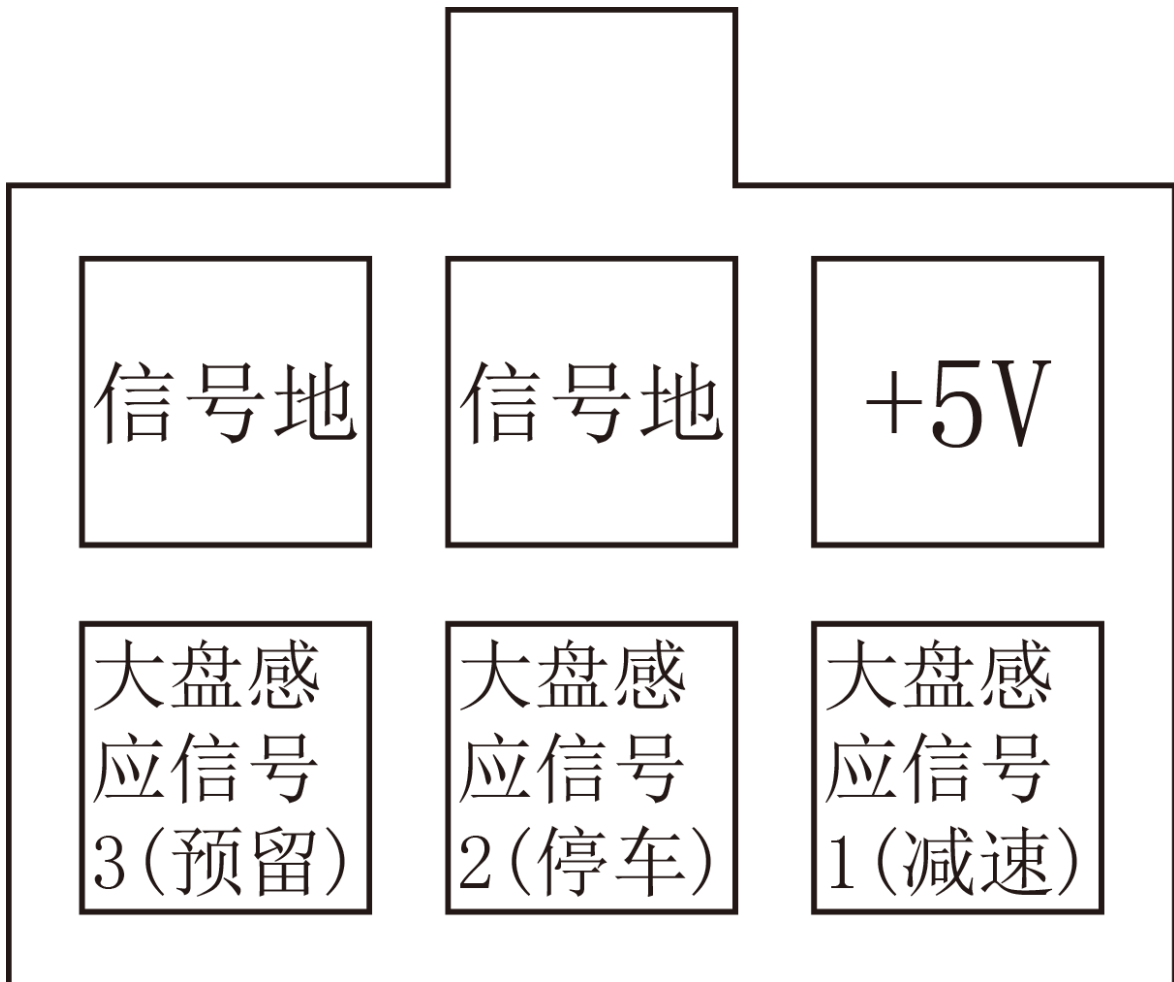
功能端口 1 示意图



功能端口 2 示意图 (预留)



大盘感应端口示意图



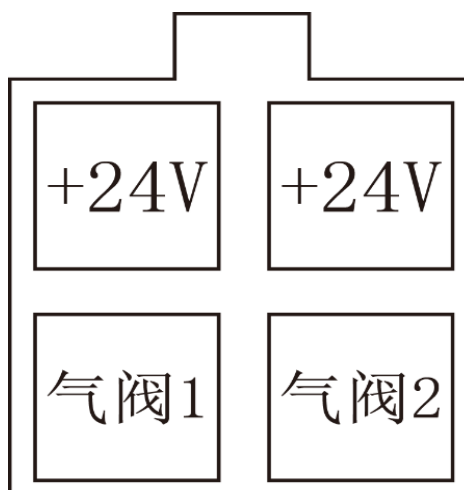
底线检测端口示意图（红色）（预留）



拖布盘感应端口示意图（蓝色）（预留）

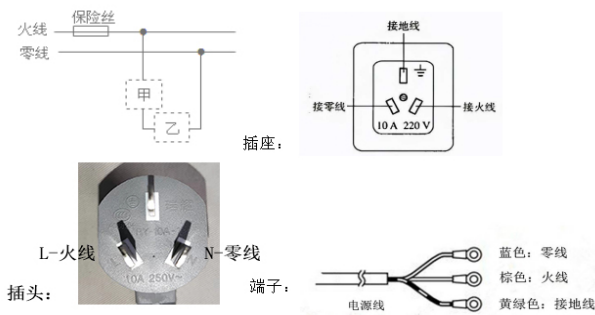


吹气阀端口示意图（橙色）（预留）



⚠ Safety Instruction

1. Users are required to read the operation manual completely and carefully before installation or operation.
2. The product should be installed and pre-operated by well-trained persons. All power supplies must be turned off during the installation work, remember not to operate with power on.
3. All the instruction marked with sign ⚠ must be observed or executed; otherwise, bodily injuries might occur.
4. For perfect operation and safety, it is prohibited that using extension cable with multi-outlet for power connection.
5. When connecting the power cord, it must be determined that the operating voltage conforms to the rated voltage value specified in the product identification.
6. Don't operate in direct sun light, outdoors area and where the room temperature is over 45°C or below 0°C.
7. Please avoid operating near the heater at dew area or at the humidity below 10% or above 90%.
8. Don't operate in area with heavy dust, corrosive substance or volatile gas.
9. Avoid power cord being applied by heavy objects or excessive force, or over bend.
10. The earth wire of power cord must be connected to the system ground of the production plant by proper size of conductions and terminals. This connection should be fixed permanently.



11. All the moving portions must be prevented to be exposed by the parts provided.
12. Turing on the machine in the first time, operate the sewing machine at low speed and check the correct rotation direction.
13. Turn off the power before the following operation:
 1. Connecting or disconnecting any connectors on the control box or motor.
 2. Threading needle.
 3. Raising the machine head.
 4. Repairing or doing any mechanical adjustment.
 5. Machines idling.
14. Please wait for more than 5 seconds after powering off
15. Repairs and high level maintenance work should only be carried out by electronic technicians with appropriate training.
16. All the spare parts for repair must be provided or approved by the manufacturer.
17. Don't use any objects or force to hit or ram the product.

Guarantee Time

Warranty period of this product is 1 year dated from purchasing, or within 2 years from ex-factory date.

Warranty Detail

Any trouble found within warranty period under normal operation, it will be repaired free of charge. However, maintenance cost will be charged in the following cases even if within warranty period:





1. Inappropriate use, including: wrong connecting high voltage, wrong application, disassemble, repair, modification by incompetent personnel, or operation without the precaution, or operation out of its specification range, or inserting other objects or liquids into the product.
2. Damage by fire, Earth quake, lighting, wind, flood, salt corrosive, moisture, abnormal power voltage and any other damage cause by the natural disaster or by the inappropriate environments.

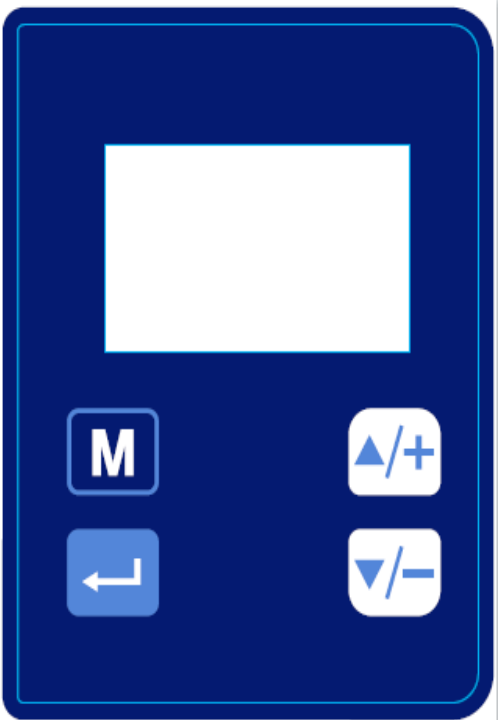
3. Dropping after purchasing or damage in transportation by customer himself or by customer's shipping agency

* We make our best effort to test and manufacture the product for assuring the quality. However, it is possible that this product can be damaged due to external magnetic interference and electronic static or noise or unstable power source more than expected; therefore the grounding system of operate area must guarantee the good earth and it's also recommended to install a failsafe device (Such as residual current breaker).

1 Key Displays and Instructions and Operating Instructions







1.1 Key Description and Instructions

Name	key	Indicate
Enter key		If click, lock/unlock. (Standby interface) Click to check and save the content of the selected parameter number: After selecting the parameter number, press this key to check and modify the operation. After modifying the parameter value, press this key to exit and save the parameter. (Parameter interface)
F key		Click to enter or exit the user parameter setting interface. In the shutdown state, press and hold the F key to boot into the technician parameter mode.
Parameter increase		If click, increase the parameter value. (Parameter interface) If long press, the parameter value is continuously increased. (Parameter interface) If click, increase the speed value. (Standby interface) If long press, the speed value will be continuously increased. (Standby interface)
Parameter decrease		If click, decrease the parameter value. (Parameter interface) If long press, the parameter value is continuously decreased. (Parameter interface) If click, decrease the speed value. (Standby interface) If long press, the speed value will be continuously decreased. (Standby interface)






1.2 Operating Instructions

1.2.1 Reset




Press  and  at the same time, and turn on the machine. RST is displayed, press  to confirm, OFF is displayed, press  or  to change to ON, and press  to confirm. After RST is

displayed, the system will shut down and restart.

1.2.2 Stepper Motor Debugging Mode

In the shutdown state, adjust feed cam to the origin position. Long press  and  to turn on the machine to display the main interface. Then long press  to enter the debugging mode, and N-01 is displayed.

1.2.3 Lock and Unlock



In the main interface short press  can switch the motor between locking and unlocking, starting the motor will be locked by default. When locked, the interface shown LOCK, the presser foot down and back pedal can be up presser foot, if step pedal the machine will not respond press  and  to modify the running speed. When unlocking, the interface will show a dynamic zero, if this time machine is at the origin position, half step pedal can down the presser foot, step pedal can start the machine; if it is not in the original position, step pedal can running the machine once, and the machine will stop at the original position.


2 User Parameters & Technician Parameters

2.1 User Parameters

No.	Items	Range	Default	Description
P01	High speed running speed (spm)	100-3600	3000	High speed setting during sewing
P02	Low speed running speed (spm)	100-3600	2000	Low speed setting during sewing
P03	Trimming speed	100-1000	800	The speed of the machine when trimming
P04	First stitch speed limit	100-3600	800	
P05	Second stitch speed limit	100-3600	800	
P06	Third stitch speed limit	100-3600	2000	
P07	Four stitch speed limit	100-3600	2500	
P09	Presser foot protection time	1-120	100	

2.2 Technician Parameters


No.	Items	Range	Default	Description
P13	Stepper motor zero-point compensation	-100~100	0	Fine-tuning the mechanical origin position of the stepper motor
P14	Main shaft motor zero-point correction			Press  in the parameter adjustment interface, main shaft motor will automatically find the zero point, and press  to save after completion
P15	The stitch number of stop machine protection	1-990	30	If feed cam can't sensing the stop signal, the machine needle should run how many stitches number can protection
P16	Deceleration protection stitches number	1-990	300	If feed cam can't sensing deceleration signal, the machine needle should run how many stitches number can protection
P17	Needles goes up automatically as power turned on	0-1	1	0: OFF 1: After turning on the power, it will automatically find the upper positioning signal and stop
P18	Up position adjustment	1-2400	90	Up position adjustment, the needle will advance stop when the value decreased, the needle will

No.	Items	Range	Default	Description
				delay stop when the value increased.
P19	Test run time (0.1s)	1-250	20	In the C test, set the on-time
P20	Test stop time (0.1s)	1-50	20	In B and C tests, set the stop time
P21	Testing A	ON/OFF	OFF	A test option, after setting, it will perform continuous running test at P01 speed
P22	Testing B	ON/OFF	OFF	B test option, after setting, it will perform full functional test at P01 test speed
P23	Testing C	ON/OFF	OFF	C test option, after setting, it will run without positioning at P01 test speed
P24	Machine protection switch selection	0-1	1	0: OFF 1: ON
P25	Stop speed	100-500	210	
P26	Maximum speed	100-3600	3600	
P27	Up position quick adjustment	0-2400		Adjust up needle position, the displayed value will change with the position of the handwheel, press  to save the current position (value) as up needle position.
P28	The highest of presser foot lift highness	0-2400	500	The Highness of presser foot lifting when starting Note: The height value is the pulse value, 2400 means the stepper motor has rotated 360°
P29	Presser foot speed	20-400	200	
P30	Lock machine presser foot switch	0-1	0	When start machine, under the lock state can back step presser foot.
P31	Pedal step running position	30-1000	700	High speed start position
P32	Pedal to mid-position	30-1000	420	
P33	Pedal half step position	30-1000	600	Low speed start position
P34	Pedal back step position	30-1000	130	

Note: the initial value of parameters is for reference only, and the actual value of parameters is subject to the real object.

3 Error Code List

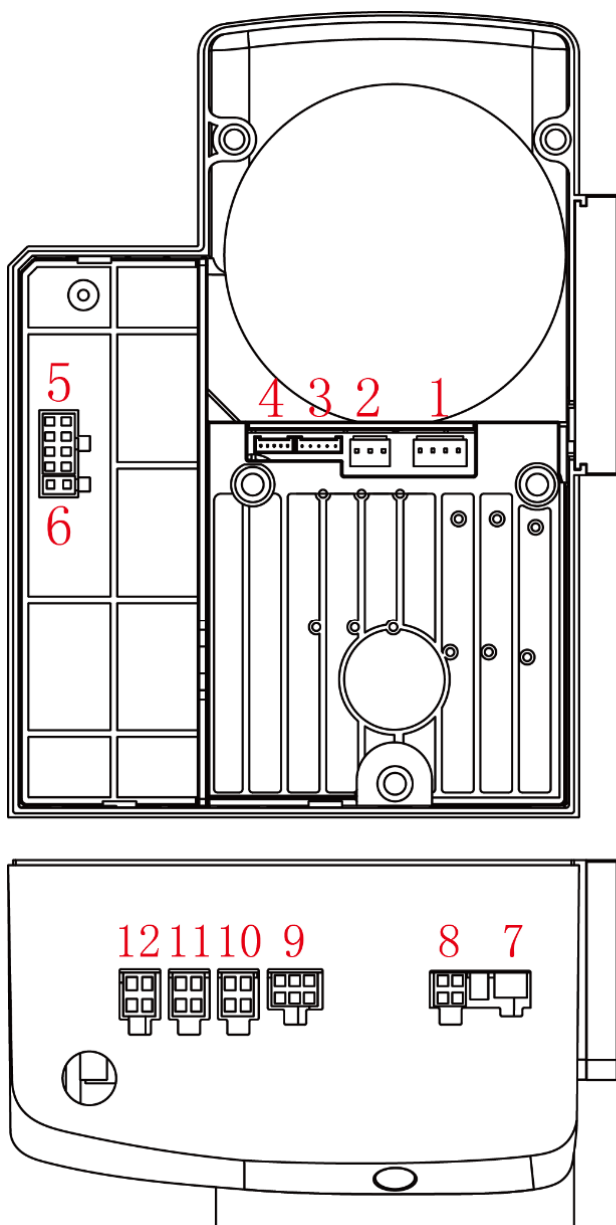
Error Code	Problem	Measure
E01	High voltage	<ol style="list-style-type: none"> Whether the grid voltage is higher than AC260V. If it is self-generated power supply, please reduce the generator power. If it still does not work normally, please replace the control box and notify the after-sales service.
E02	Low voltage	<ol style="list-style-type: none"> Whether the grid voltage is lower than AC160V. Reset. If it still does not work normally, please replace the control box and notify the after-sales service.
E03	CPU communication abnormal	<ol style="list-style-type: none"> Turn off the system power and check whether the connection of the display screen is loose or disconnected, restart the system after returning it to normal. Turn off the system power, remove the control box and only plug in the power cord to power on, whether alarm E05, if it still alarms E03, replace the control box and notify the after-sales service.
E05	Pedal signal abnormal	<ol style="list-style-type: none"> Check whether the pedal connector is loose or fall off, and restart the system after returning it to normal. If it still does not work normally, please replace the control box or speed controller and notify the after-sales service.。

E07	Main shaft motor locked-rotor	<ol style="list-style-type: none"> 1. Turn off the power and check whether the handwheel can be turned smoothly (turn the handwheel by hand), if it cannot be turned, please check the machine; 2. Turn off the power, check whether the motor power connector is loose, plug it in and restart it; 3. Check whether the upper needle stop position is correct, if not, please adjust the upper positioning position; 4. If it still does not work normally, please replace the control box or main shaft motor and notify the after-sales service.
E10	Electromagnet overcurrent	<ol style="list-style-type: none"> 1. Unplug the solenoid connector, if alarm E10, replace the control box and notify the after-sales service. 2. If there is no alarm after removing the solenoid connector, please plug it back in.
E11	The positioning signal of main shaft motor encoder is abnormal	<ol style="list-style-type: none"> 1. Turn off the system power, check whether main shaft motor encoder connector is loose or fall off, restore it to normal and restart the system. 2. Check whether the motor zero point correction setting is correct; reset the motor zero point correction; Whether there is oil on the encoder code plate, please clean it if there is any; 3. If it still does not work normally, please replace the control box or main shaft motor and notify the after-sales service.
E14	Main shaft motor encoder signal is abnormal	<ol style="list-style-type: none"> 1. Turn off the system power, check whether the main shaft motor encoder connector is loose or fall off, restore it to normal and restart the system. 2. Check whether the grating is installed correctly (whether the grating screws are tightened and whether the grating is in the center of the encoder). 3. Check whether there is oil on the encoder code plate, if there is, please clean it up, and restart the system after recovery. 4. If it still does not work normally, please replace the control box or main shaft motor and notify the after-sales service.
E15	Main shaft motor drive overcurrent	<ol style="list-style-type: none"> 1. Please check whether the motor power cord has bad contact; 2. Please check whether the motor power cord is crushed; 3. Please replace the control box or main shaft motor and notify the after-sales service.
E17	Machine overturned	<ol style="list-style-type: none"> 1. Turn off the system power and check if the machine is overturned. 2. Check whether the machine protection switch detection setting is correct. 3. If it still does not work normally, please replace the control box or panel and notify the after-sales service. <p>Press  to cancel the alarm once.</p>

E19	The feed cam deceleration sensor is not in the correct position	Check whether the position of feed cam is normal and whether the deceleration sensor is damaged.
E20	The feed cam stopping sensor is not in the correct position	Check whether the position of feed cam is normal and whether the stop sensor is damaged.
E82	Stepper motor overcurrent	<ol style="list-style-type: none"> 1. Turn off the system power and observe whether stepper motor is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether connector of stepper motor is loose or fall off, restore it to normal and restart the system. 2. If it still does not work normally, please replace the control box or stepper motor and notify the after-sales service.
E84	The positioning signal of stepper motor encoder is abnormal	<ol style="list-style-type: none"> 1. Turn off the system power and observe whether stepper motor is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether the encoder connector of stepper motor is loose or fall off, and restart the system after returning it to normal. 2. Check whether the grating is installed correctly (whether the grating screws are fastened and whether the grating is in the center of the encoder); 3. Check if there is oil on the grating code plate, if so, please clean it up, and restart the system after restoration; 4. If it still does not work normally, please replace the control box or stepper motor and notify the after-sales service.
E85	Stepper motor encoder signal is abnormal	<ol style="list-style-type: none"> 1. Turn off the power of the system, check whether the encoder connector of stepper motor is loose or fall off, restore it to normal and restart the system. 2. Check whether the grating is installed correctly (whether the grating screws are fastened and whether the grating is in the center of the encoder); 3. Check if there is oil on the grating code plate, if so, please clean it up, and restart the system after restoration; 4. If it still does not work normally, please replace the control box or stepper motor and notify the after-sales service.

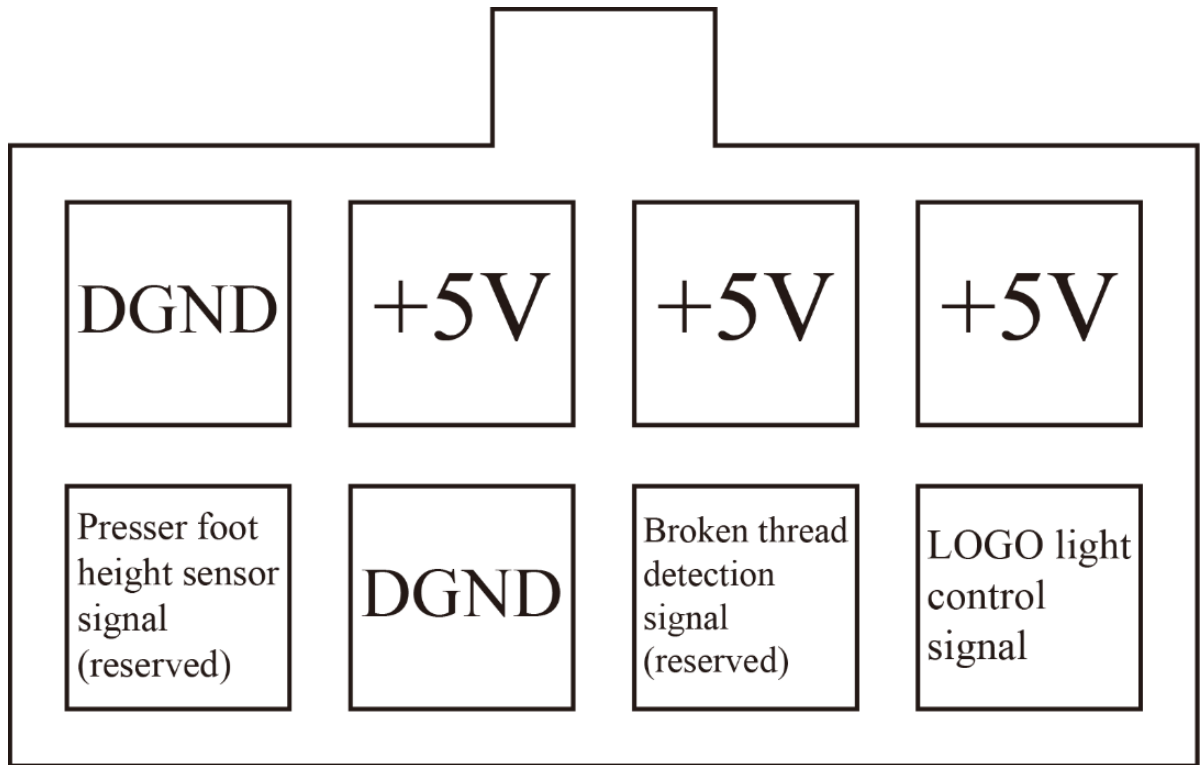
E86	Stepper motor failed to start	<ol style="list-style-type: none"> 1. Turn off the power of the system, check whether the power cord connector of stepper motor and the encoder connector are loose or fall off, restore them to normal and restart the system. 2. Check whether the grating is installed correctly (whether the grating screws are fastened and whether the grating is in the center of the encoder); 3. Check if there is oil on the grating code plate, if so, please clean it up, and restart the system after restoration; 4. If it still does not work normally, please replace the control box or stepper motor and notify the after-sales service.
E87	Stepper motor locked-rotor	<ol style="list-style-type: none"> 1. Turn off the system power and observe whether stepper motor is stuck. If it is stuck, remove the mechanical failure of the machine first. If it is normal, check whether the power cord connector of motor and the encoder connector are loose or fall off, restore them to normal and restart the system. 2. If it still does not work normally, please replace the control box or stepper motor and notify the after-sales service.

4 Port Diagram

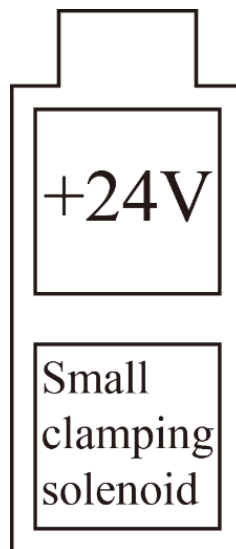


1	Servo motor port
2	Stepper motor port
3	Servo motor encoder port
4	Stepper motor encoder port
5	Function port 1
6	Function port 2
7	Control box programming port
8	Pedal port
9	Feed cam sensing port
10	Bottom thread detection port
11	Cloth puller sensing port
12	Blowing valve port

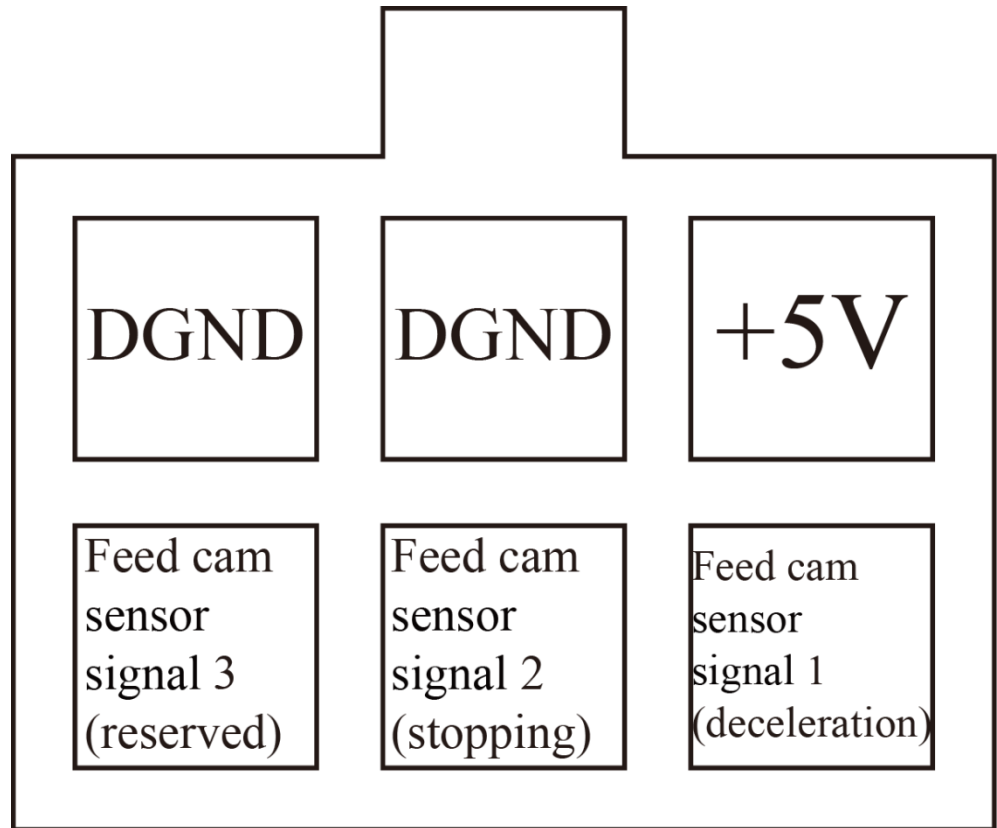
Function port 1 description



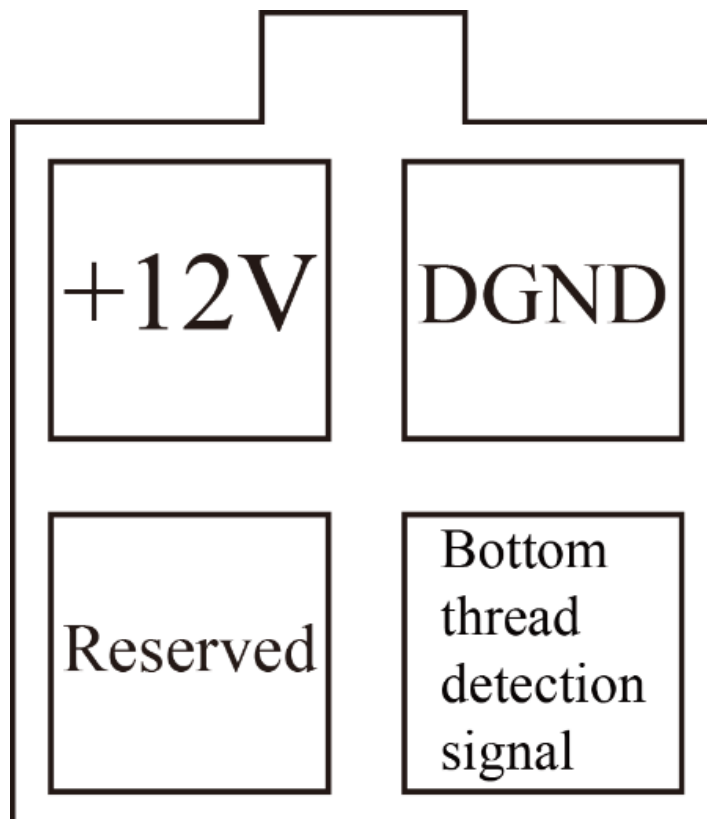
Function port 2 description (Reserved)



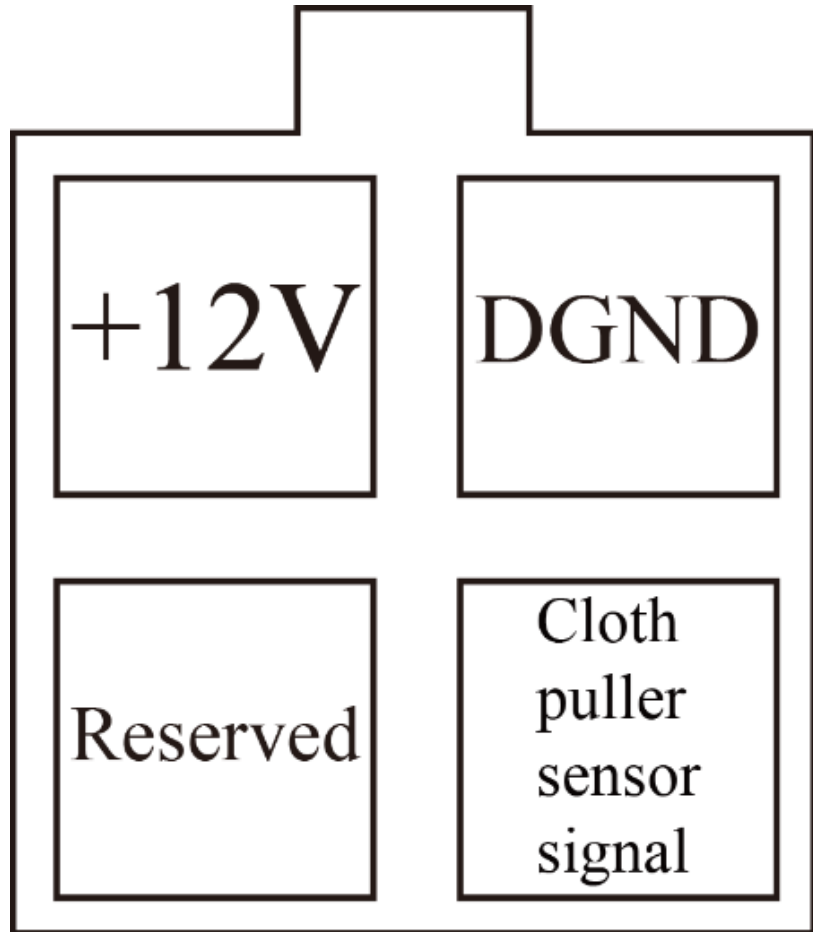
Feed cam sensing port description



Bottom thread detection port description (Red) (Reserved)



Cloth puller sensing port description (Blue) (Reserved)



Blowing valve port description (Orange) (Reserved)

