

QD289 系列控制系统说明书 V1.1.07

No. 10404262

⚠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) 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。
- 15) 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。
- 16) 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场所造成的损害。
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 按键显示及操作说明

1.1 按键说明

名称	按键	注明
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功能键		若点击，进入或退出用户参数设定界面。
确认键		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。
上键		若点击，增加参数值/加速。 若长按，连续增加参数值/连续加速。
下键		若点击，减少参数值/减速； 若长按，连续减少参数值/连续减速；
停针位键		若点击，切换缝制后机针的停止位置（上停针位/下停针位）
慢速起缝键		若点击，设定使用或取消慢速起缝功能

1.2 辅助功能

1.2.1 高级参数界面

长按  和  开机，进入高级参数项界面。

1.2.2 恢复出厂设置

长按  和  开机，恢复出厂设置。

2 参数表

参数项	中文说明	范围	初始值	内容值名称说明与备注
P01	最高转速（rpm）	100-5000	3700	
P02	停针位选择	0-2	1	0：上停针；1：下停针；2：无定位
P03	慢速起缝功能设定	0-1	0	0：关；1：开
P04	慢速起缝速度（rpm）	200-1500	400	
P05	慢速起缝针数（针）	1-15	1	
P07	上定位调整	0-29	0	
P08	下定位调整	0-29	15	
P09	开电后自动找上定位	0-1	1	0：始终不找上定位；1：始终找上定位
P10	机头保护开关	0-1	1	0：关闭；1：检测零信号

参数项	中文说明	范围	初始值	内容值名称说明与备注
P15	补针方式	0-3	0	0：半针；1：一针；2：连续补半针；3：连续补一针
P21	马达转动方向设定	0-1	1	0：顺时针方向；1：逆时针方向
P22	测试速度（rpm）	200-5000	3500	
P23	测试时测试运行时间	1-250	20	
P24	测试时测试停止时间	1-250	20	
P25	A 项测试	0-1	0	持续运行测试模式。
P26	B 项测试	0-1	0	启停测试模式。
P27	上定位快捷调整	0-30		
P28	下定位快捷调整	0-30		
P30	起缝第一针限速	0-3000	0	参数值小于 100 时无效。
P33	虚实转速功能生效转速设置	0-5000	3000	
P34	虚实转速比（%）	10-100	50	【P33】以上每增加 100, 实际增加 100*【P34】。
P35	虚拟转速开关	0-1	0	
P36	机型选择	1-20	3	
P37	最高限速	200-5000	4000	
P38	静态交流过压值设定	100-450	400	
P40-N01	电控版本号			
P40-N03	转速			
P40-N04	脚踏板 AD 值			
P40-N07	母线电压 AD 值			

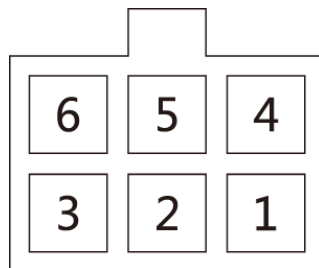
注：参数初始值仅供参考，实际参数值以实物为准。

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	主 CPU 与面板 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 E03，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。
E09 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。
E20	主轴电机启动失败	1、关闭系统电源，检查主轴电机电源线接口、编码器接口是否松动或脱落，将其恢复正常后重启系统。 2、检查电机零点校正设置是否正确；重新设置电机零点校正。 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。

4 端口示意图



1. 补针按键：1（信号）、4（DGND）

2. LED灯：3（DGND）、6（+5V）

QD289 Series Control System Instruction Manual V1.1.07

No. 10404262



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. Repairs and high level maintenance work should only be carried out by electronic technicians with appropriate training.
15. All the spare parts for repair must be provided or approved by the manufacturer.
16. 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:

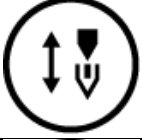
1. Inappropriate use, including: wrong connecting high voltage, wrong application, disassemble, repair, modification by incompetent personnel, or operation without the precaution, or operation out of its specification range, or inserting other objects or liquids into the product.
2. Damage by fire, Earth 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 Button displays and operating instructions

1.1 Key description

Name	key	Indicate
Function key		If press, enter or exit the user parameter setting interface.
Enter key		For the content of the selected parameters check and save: after select parameter press this key to check and modify operation, after modified parameter value press this key to exit and save the parameter.
Parameter increasing		If press, the parameter / speed will be increased. If long-press, the parameter / speed will be increased continuously.
Parameter decreasing		If press, the parameter will be decreased. If long-press, the parameter / speed will be decreased continuously.
Stopping position selection of the needle		If press, the stopping position of needle after sewing is switched (upper position / lower position).
Soft start		If press, set used or cancelled soft start function.

1.2 Auxiliary function

1.2.1 Advanced parameter interface

Long-press  and  to turn on the power and enter the advanced parameter interface.

1.2.2 Restore factory settings

Long-press  and  to turn on the power, and it will restore factory settings.

2 User parameter

No.	Items	Range	Default	Description
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No.	Items	Range	Default	Description
P01	Maximum speed	100-5000	3700	
P02	Stopping position selection of the needle	0-2	1	0: Upper position 1: Lower position 2: OFF
P03	Soft start function selection	0-1	0	0: OFF 1: ON
P04	Soft start speed (rpm)	200-1500	400	
P05	The number of stitches for soft start (stitch)	1-15	1	
P07	Upper positioning adjustment	0-29	0	
P08	Lower positioning adjustment	0-29	15	
P09	Automatically find the upper position after power-on	0-1	1	0: OFF 1: ON
P10	Machine protection switch selection	0-1	1	0: No detection; 1: Detection of zero signal
P15	Darning stitch mode	0-3	0	0: Half stitch 1: One stitch 2: Continuous half stitch 3: Continuous one stitch
P21	Direction of motor rotation	0-1	1	0: Clockwise 1: Counter clock wise
P22	Testing speed	200-5000	3500	
P23	Test running time	1-250	20	
P24	Test stopping time	1-250	20	
P25	Testing A	0-1	0	Setting testing speed.
P26	Testing B	0-1	0	Continuous running testing.
P27	Upper positioning quick adjustment	0-30		
P28	Lower positioning quick adjustment	0-30		
P30	First stitch speed limit when start sewing	0-3000	0	The function is disabled when the parameter value is less than 100.
P33	Speed setting when virtual-real speed function is enable	0-5000	3000	
P34	Virtual-real speed ratio (%)	10-100	50	[P33] For every additional 100, the actual increase is 100*[P34].
P35	Virtual speed switch	0-1	0	
P36	Model selection	1-20	3	
P37	Maximum speed limit	200-5000	4000	

No.	Items	Range	Default	Description
P38	Static AC overvoltage setting	100-450	400	
P40-N01	Main software version			
P40-N03	Speed			
P40-N04	The pedal AD			
P40-N07	Busbar voltage AD			

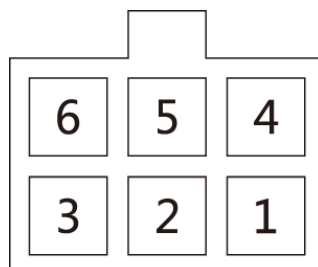
Note: the initial value of parameters is for reference only, and the actual value of parameters is subject to the real object.

3 Error code list

Error Code	Problem description	Solutions
E01	High voltage	1. Whether the grid voltage is higher than AC260V. 2. If it is self-generated power supply, please reduce the generator power. 3. If it still does not work normally, please replace the control box and notify the after-sales service.
E02	Low voltage	1. Whether to connect to low voltage. 2. Reset. 3. If it still does not work normally, please replace the control box and notify the after-sales service.
E03	CPU communication abnormal	1. 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. 2. Turn off the system power, remove the control box and only plug in the power cord to power on, whether alarm E03, if it still alarms E03, replace the control box and notify the after-sales service.
E05	Pedal signal abnormal	1. Check whether the pedal connector is loose or fall off, and restart the system after returning it to normal. 2. 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	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 spindle motor and notify the after-sales service.
E09 E11	The positioning signal of main shaft motor encoder is abnormal	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	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	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	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.
E20	Main shaft motor failed to start	1. Turn off the system power, check whether main shaft motor power cord connector and encoder connector are loose or fall off, restore them to normal and restart the system. 2. Check whether the motor zero point correction setting is correct, reset the motor zero point correction. 3. If it still does not work normally, please replace the control box or main shaft motor and notify the after-sales service.

4 Port diagram



- Darning stitch key: 1 (signal), 4 (DGND)
- LED light: 3 (DGND), 6 (+5V)

