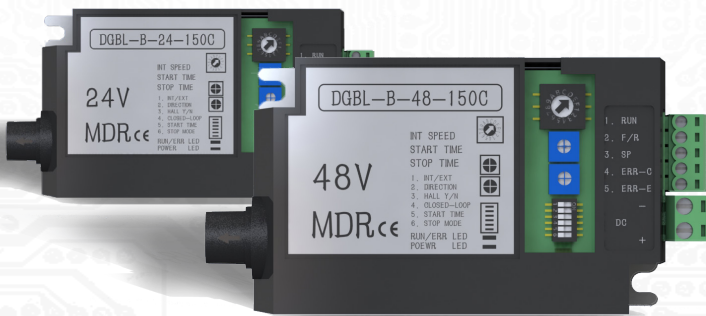




DGBL-B Motor roller drive card (V10D-15/10H)



JIANGSU WINROLLER TECHNOLOGY CO.,LTD

WUXI XINHUASHENG MOTOR DRIVE ROLLER MANUFACTURE CO.,LTD

Catalog

Catalog.....	1
Record update.....	2
Noun explanation.....	2
Symbol definition.....	3
Important user information.....	3
DGBL –B driver characteristic.....	4
DGBL - B (9 core flat head core flat head gold needle connector).....	5
Terminal blocks.....	6
The power port.....	6
Signal port.....	6
Motor roller and the driven card ground	7
Run and turn.....	8
Adjusting the rotational speed of roller.....	11
Adjusting the acceleration/deceleration of roller	11
Drive card fault output	12
Roller drive card status table	
Chart 1# The power supply/motor roller connected and does not give the RUN signal.....	13
Chart 2 # The motor roller running normally	13
Chart 3 # power under-voltage.....	14
Chart 4 # power over-voltage.....	14
Chart 5 # hall abnormal.....	15
Chart 6 # roller locked-rotor.....	15
Chart 7 # overcurrent.....	16
Chart 8 # motor roller overheating	16
Common exception handling methods.....	17
Controller dimension.....	17


Update record

DCR#	Rev.	Date	Remark
1	1.0	2019.9.5	Document found
2	1.1	2019.12.21	1. Added the description of the traffic limit 2. Change the internal circuit diagram and add PNP and NPN cutting methods
3	1.2	2020.7.13	1. Add the forward and reverse control wiring diagram
4	1.3	2020.7.18	1. Add dimension drawing
5	1.4	2020.8.24	1. The controller version is optimized to V10D-15/10H 2. Error alarm added. Blink four times
6	1.5	2020.12.6	Add company information

Noun explanation

DC brushless motor	The motor consists of a permanent magnet rotor and a stator wound with a coil. This kind of motor has the advantages of simple structure, high reliability and stability, high efficiency, strong adaptability and other advantages, so it has been widely used.
Hall sensor	Because the brushless motor cancels the carbon brush, the motor itself cannot run and needs to rely on the external drive card to run. Hall sensor is installed in the motor to feedback the position signal to the driver card
LED	Light-emitting diode, used to indicate the status of the drive system.
PNP/NPN	Logic level of effective control signal: NPN indicates that the low level is effective, that is, it is connected to DC-effective; PNP indicates that the high level is effective, that is, DC+ is effective.
PLC	Industrial programmable logic controller
Speed open loop/close loop	Speed opening ring, roller speed decreases with the increase of load; The speed is closed loop. When the rated power of the drum is within, the speed of the drum does not change with the load

Symbolic definition

 This symbol indicates that special care should be taken to ensure proper operation and avoid personnel or production damage, at the same time to ensure the correct use of the product, otherwise it will lead to kinds of unexpected result.

 This symbol indicates proper usage, a hint, or something else useful information.

VIP customers information

DGBL-B contains ESD sensitive components and components. ESD prevention is required when installing, commissioning, maintaining, or replacing a driver card. Electrostatic discharge control procedures may cause damage to components if not performed. If you are not familiar with that electrostatic control step, refer to the ESD protection manual. Ground to let off static electricity; Install a specified grounding electrostatic ring; Do not touch the connectors and gold fingers on the assembly plate; Do not touch the component loop inside the device; If possible, use in electrostatic protection work; Store equipment in electrostatic protective packaging when not in use.

Due to the diverse use of products in this manual, those controlling equipment for the use of products must be met, the necessary steps must be made to ensure that every use and use must refer to the performance standards and safety requirements, including the use of laws, regulations, guidelines and standards.

The illustrations, diagrams, sample programs and layouts in the manual are for example purposes. Any particular installation has many variables and requirements for which we are not liable (including intellectual property rights).

It is forbidden to copy the contents of the manual in whole or in part.

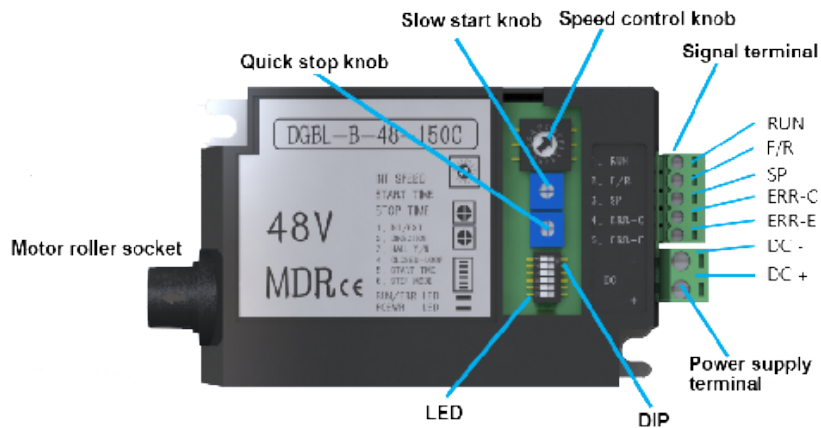
DGBL –B driver characteristic

- Internal 20A patch type fuse
- Overheat and overcurrent protection for drive card and electric roller
- Protection against power polarity access errors
- Power supply/electric roller overvoltage indication (32V)
- Power supply undervoltage indication (18V)
- PID and knob speed control modes, 32 fixed speed options
- 0~2.5s type add/subtract speed setting adjustment
- EBS brake support
- Automatic error recovery
- LED 2 status LED
- Detachable power and signal terminals
- The ability of electric rollers to reverse during operation
- Error output signal and drive card with electric roller diagnosis LED indication
- The choice of the default rotation direction
- Toggle switch with LED on transparent protective cover
- Switching between NPN and PNP modes
- Connect 0~10V external voltage stepless speed regulation
- Two-stage speed can be customized (incompatible with stepless speed regulation)
- Sensory/non-sensory operation
- Speed open loop/closed loop operation

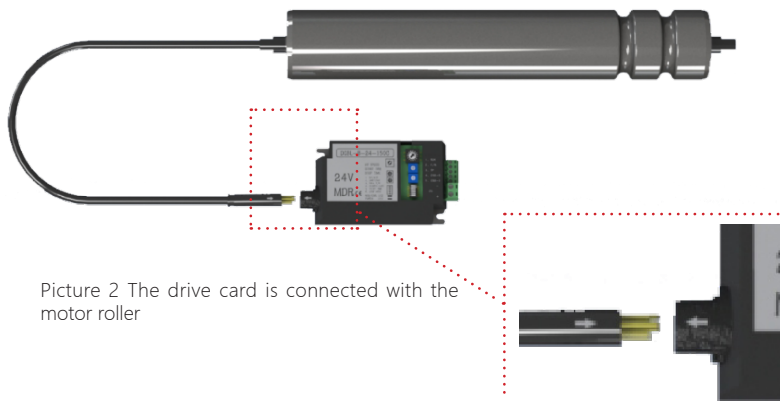
DGBL - B (9 core flat head core flat head gold needle connector)

Figure 1 shows the appearance of DGBL-B driver card. This type of driver card uses a nine-core flat head gold needle connector (motor connector).

Figure 2 shows the connection between the drive card and the motor roller.



Picture 1 DGBL-B driver layout



Picture 2 The drive card is connected with the motor roller

Wiring terminal

● Power port

2 hole screw access terminal. Suitable for wire size from 12-24 awg.



The GND port of the power connector or the 0V end of the power supply is grounded to prevent electrostatic damage.

● Signal port

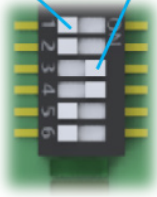
5-hole screw access test terminal. Suitable for wire size from 12-24 awg. The meaning of each signal is listed in the table below.

DGBL-B Terminal buttons Function Description

Name	Function description
Power supply terminal	Dc power input
Signal terminal	Control signal input and error signal output, part of the function is used with DIP
DIP	Function DIP
Speed control knob	Function DIP 16 speed regulation, with DIP dip use
Slow start knob	Set the startup acceleration time and use it in conjunction with DIP
LED	Power indicator and status indicator
Motor roller socket	Special electric drum nine-core socket



OFF ON



The area where the toggle switch and LED are located is protected by a clear plastic cover. The protective cover can be opened outwards from the bottom edge of the plastic cover. After setting the protective cover, ensure that the protective cover is fastened tightly when closing it.

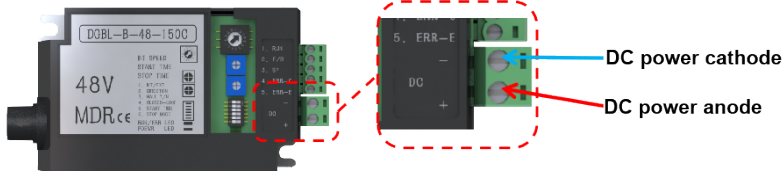
Motor roller and drive card are grounded

The bearing of the electric roller must be closely combined with the fixed support and the frame must be effectively guided. The common port of the 24V DC power supply can also be grounded.



Incorrect grounding of electric roller or power supply will cause damage to electric roller or drive card. Proper grounding techniques must be properly observed and applied.

Driver card power supply



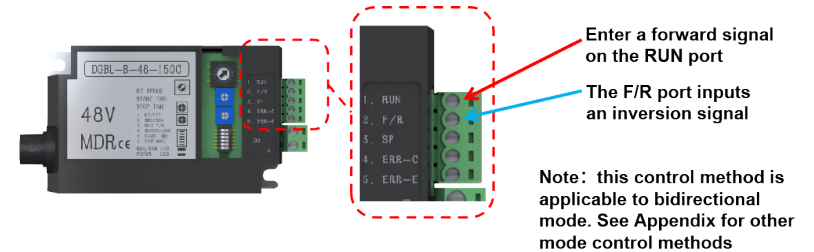
Model	Rated power input	Allowable voltage range	Allowable voltage fluctuation	Driver peak
DGBL-B-24-150C	24V	19-27V	±5%	Around 13A
DGBL-B-48-150C	48V	44-52V	±5%	Around 8A

Attention

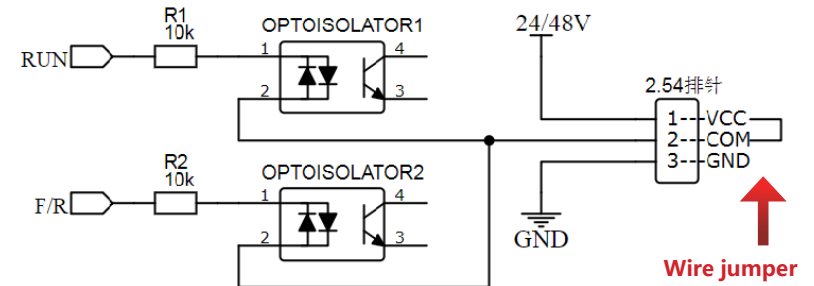
1. If the red light is steady on and the green light is not blinking, the power supply is connected properly.
2. The peak current in the table above is the current limiting value of the DC bus of the driver. After reaching the limit current, the driver will continue to output at the limit current;
3. The peak current in the table above is the default factory value of the driver. If you want to limit the current, please communicate with our company in advance and do the limit before leaving the factory.

Run and turn

1. Control signals

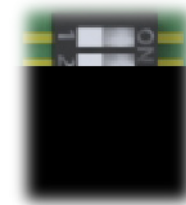


Control logic	Active level	Internal circuit of input end	Effective current range
NPN	Low level	See the following picture (inside the dotted line box is the inside of the driver card)	2-10mA
PNP	High level	Connect the wire jumper connecting VCC and COM to COM and GND	2-10mA



Note: The control logic is set before delivery. If not specified in advance, the default delivery is NPN; If you need to change the controller logic after delivery, open the drive housing and change the position of the wire jumper.

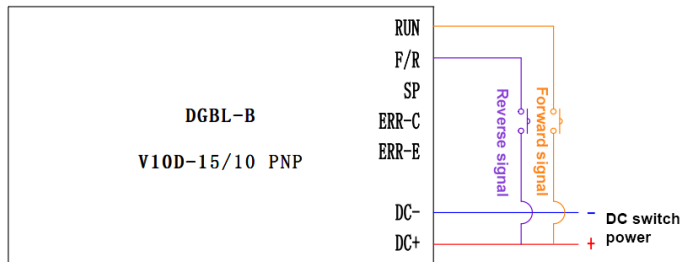
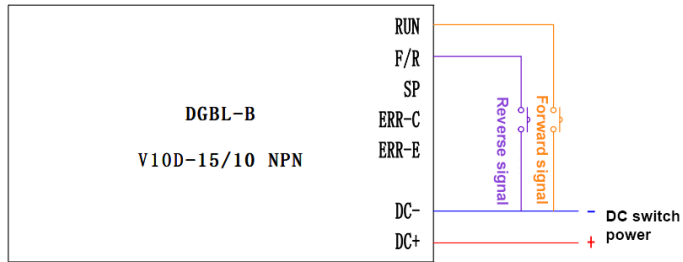
2. Change the default roll steering



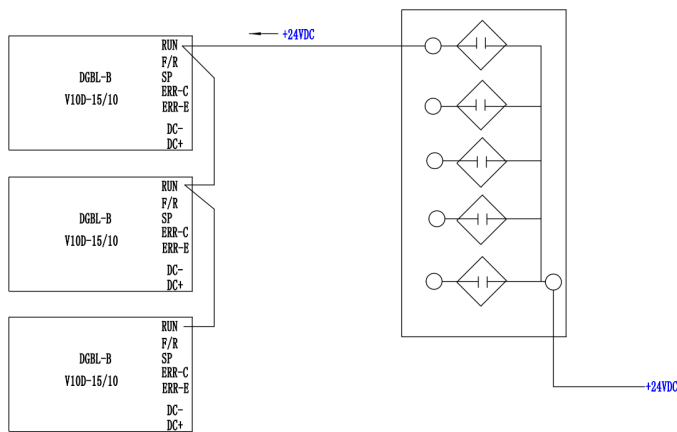
Turn on No. 2 DIP switch to switch the default rotation direction of the roller

3. Typical wiring diagram

DGBL-B

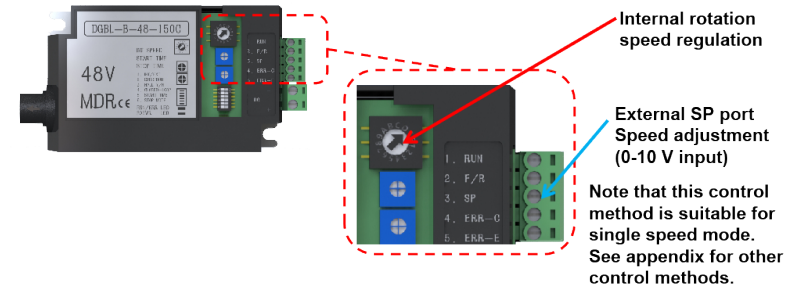


The RUN and F/R (reverse) ports can only be triggered separately. If they are triggered at the same time, the roller will not run.



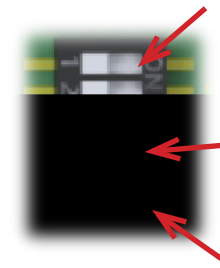
Multi - drive clamp PLC

Adjust the speed of the roller



● DIP 1: Switches the speed regulation of internal knob and external SP port

1. Factory setting DIP switch No. 1 is OFF, using the internal knob for speed regulation;
2. To use the SP port for speed control, set DIP switch 1 to ON (SP port for speed control is 0-10V stepless. If the input voltage exceeds 10V, the maximum speed will be maintained).



● DIP No. 4: Switch speed open loop and closed loop

1. The factory setting of DIP switch No. 4 is OFF, which is an open loop mode.
2. To use closed loop mode, turn DIP switch No.4 on.

● DIP 6: Switch between high and low gear

1. The factory setting of DIP switch No. 4 is OFF, which is an open loop mode.
2. To use closed loop mode, turn DIP switch No.4 on.

The following table shows the motor speed corresponding to each gear of internal knob speed regulation in low/high gear under closed loop state

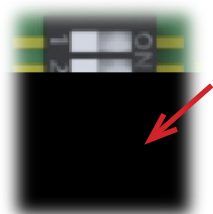
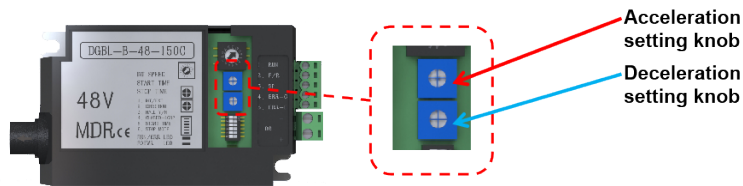
DIP switch 6 off							
Gear	Motor rotate	Gear	Motor rotate	Gear	Motor rotate	Gear	Motor rotate
0	200	4	1000	8	1810	C	2290
1	400	5	1200	9	2000	D	2440
2	600	6	1420	A	2110	E	2520
3	800	7	1620	B	2230	F	2600

Note: Roller rotate= motor rotate/speed ratio

DIP switch 6 on							
Gear	Motor rotate	Gear	Motor rotate	Gear	Motor rotate	Gear	Motor rotate
0	2790	4	3250	8	3900	C	5200
1	2890	5	3390	9	4340	D	5580
2	3000	6	3550	A	4590	E	6000
3	3120	7	3720	B	4880	F	6510

Note: Roller rotate= motor rotate/speed ratio

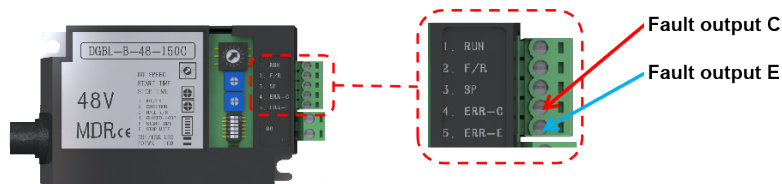
Regulate roller's acceleration/deceleration



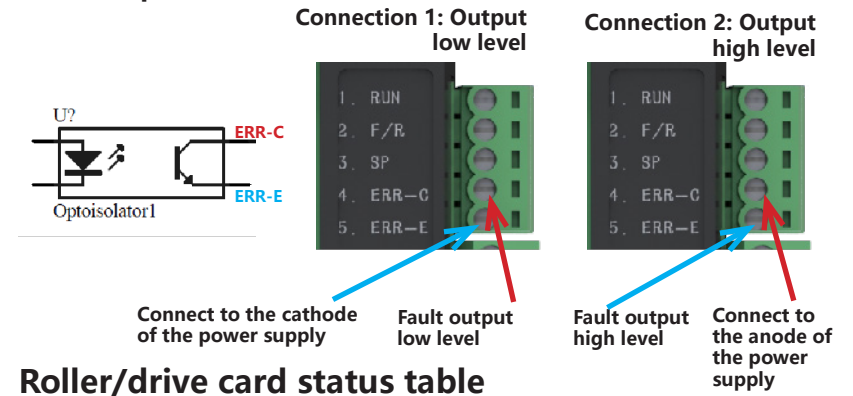
● DIP No. 5: acceleration/deceleration setting enable switch

1. The factory setting of DIP switch No. 5 is OFF. At this time, the drum starts with the maximum acceleration and stops with inertia;
2. To set the roller start acceleration/stop deceleration, dial DIP No. 5 to ON, then adjust the acceleration setting knob and speed reducing setting knob, you can set the time required for the drum to reach the set speed and the time for the drum to decelerate to stop after receiving the stop signal.
3. Set the time range as 0-2.5s and rotate clockwise to lengthen the time.

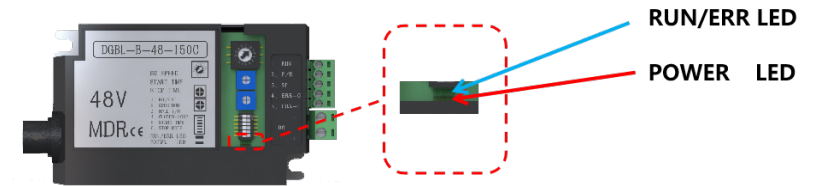
Drive card fault output



Fault output internal circuit



Roller/drive card status table



POWER LED Status (red)	Controller status	Status description
Extinguish	Power off	-
Steady light	Power on	-

POWER LED 状态 (绿色)	Controller status	Status description
Extinguish	Standby	-
Steady light	Normal running of roller	-
Flash stop for two seconds, loop	Power supply anomaly	Undervoltage or overvoltage of the power supply, beyond the working range
Flash twice, stop for two seconds, loop	Hall anomaly	The status of the sensor is abnormal due to electromagnetic interference
Flash three, stop two seconds, loop	Motor locked-rotor	Motor cannot turn, has a heavy load or is stuck
Flash four times, stop for two seconds, loop	Overcurrent	Roller short circuit or drive card mos damaged
Flash five and stop for two seconds, loop	Motor roller overheats	The motor roller temperature exceeds the protection threshold
More than 5 times, loop	Other drive cards or rollers fault	-

LED can express the normal situation briefly. In the following sequence diagram, we can see the LED display rule under normal condition and wrong condition:

Chart1# Power connection, motor roller connection, no RUN signal

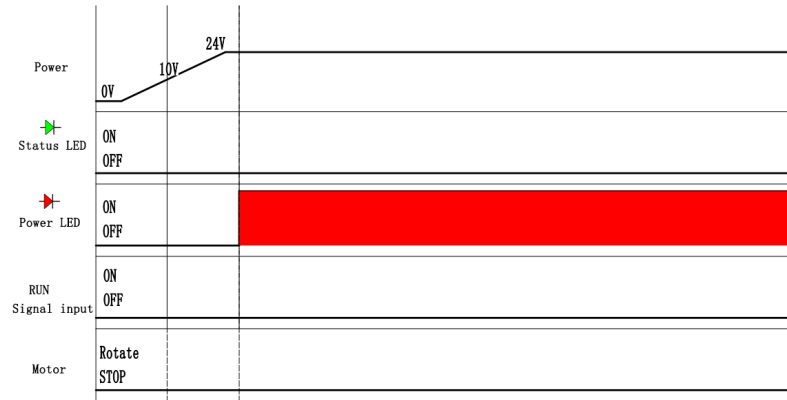


Chart 1

Chart 2 # The motor roller running normally

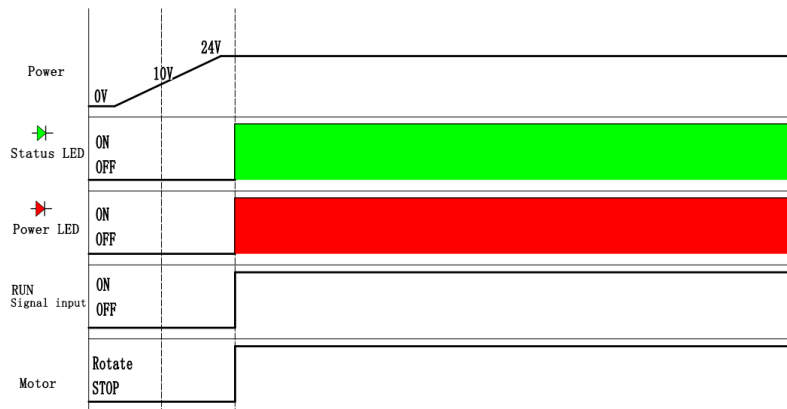


Chart 2

Chart 3 # power supply under-voltage

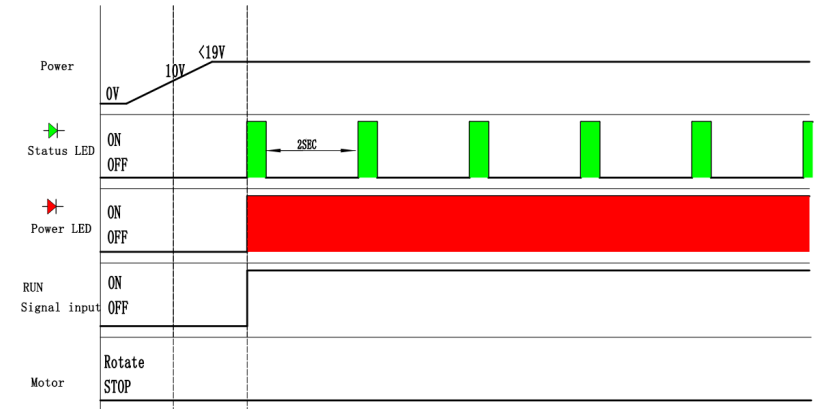


Chart 3

Chart 4 # power over-voltage

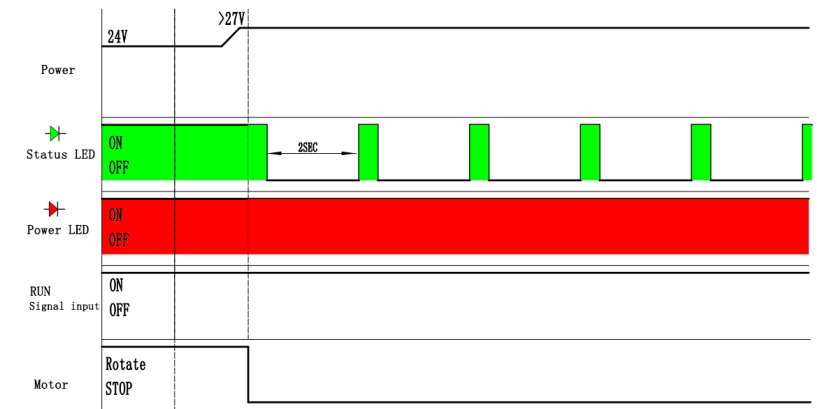


Chart 4

Chart 5 # hall abnormal



Chart 5

Chart 7 # overcurrent

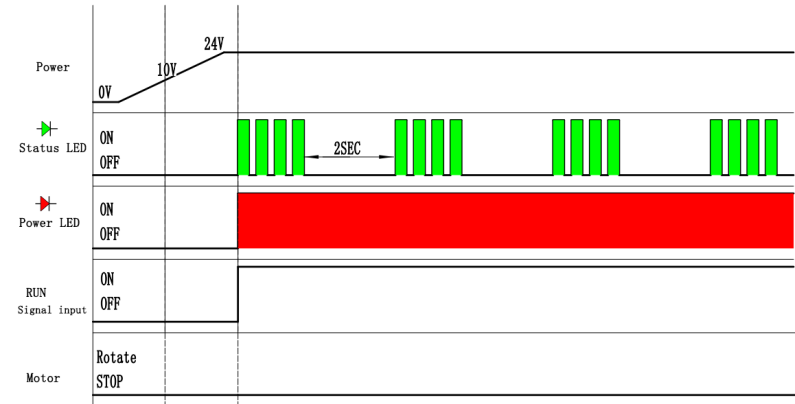


Chart 7

Chart 6 # roller locked-rotor

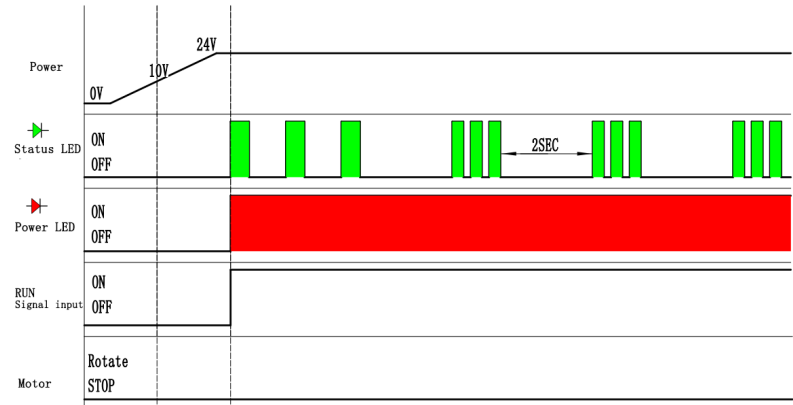


Chart 6

Chart 8 # motor roller overheating

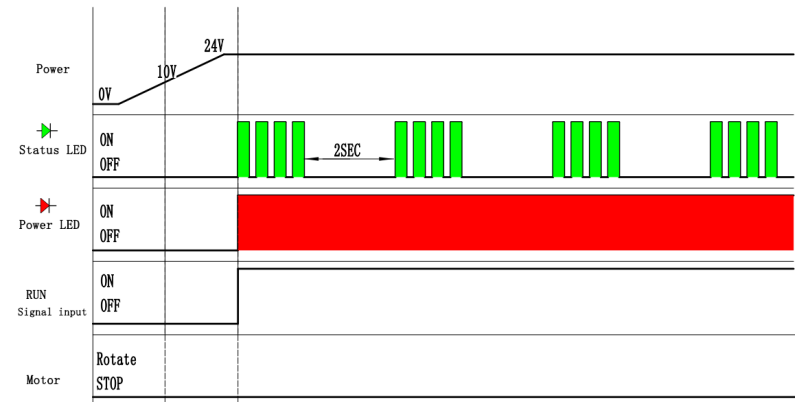
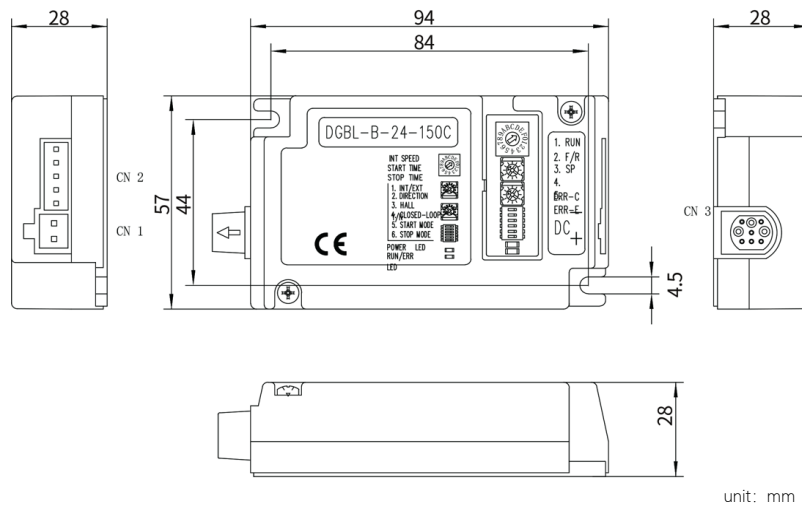


Chart 8

Common exception handling methods

Roller/controller status	Status description
Power supply anomaly	Use a multimeter to measure the voltage of the power terminal of the driver card, and check whether the voltage drops during startup and running. If there is an obvious voltage drop, shorten the cable length between the power supply and the driver card, or thicken the cable diameter. See page3 for the allowable range of voltage.
Hall anomaly	Switch DIP number 3 to ON
Motor locked-rotor	1. Switch DIP number 3 to ON 2. If the fault persists, contact the manufacturer
Other drive cards or rollers are faulty	Contact the manufacturer

Controller dimension



Precision high-end quality
Fast and thoughtful service



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