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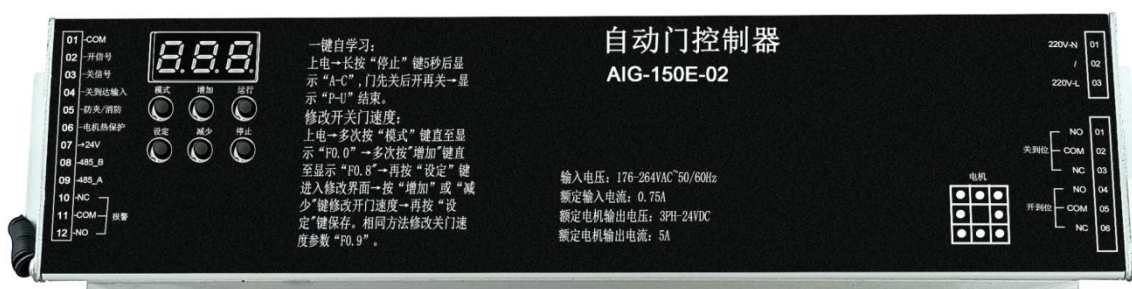
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Address: Room 302, Building 11, No. 79 Jinsui Road, Economic and Technological Development Zone, Jiaxing, Zhejiang P.R. China

# Lift Door DC Brushless Controller

## AIG-150E-02

### User's Manual VER2.1



Please read this manual carefully  
before operating the controller  
and keep it in a safe place for future



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## Safety instructions

1. This instruction manual describes how to use the sliding door controller and precautions, when installing or using the product, the user must thoroughly and carefully study this manual.
2. This product must be installed or operated by properly trained personnel.
3. For safety reasons, it is prohibited to use an extension cord as a power strip for more than two electrical appliances.
4. When the power cord goes to the power block, it must be determined that this voltage meets the nameplate voltage requirements.
5. The earth wire of the power cord shall be connected to the system ground of the manufacturing plant with a suitably sized wire and connector, and this connection shall be permanently fixed.
6. Repairs or high-level maintenance work can only be carried out by properly trained electro-mechanical technicians.
7. All parts for maintenance must be supplied and approved by the Company before use.



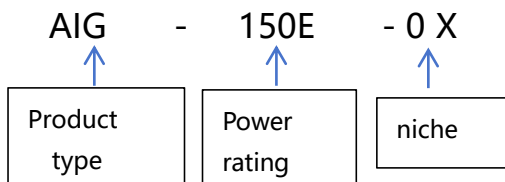
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# Chapter 1: Product Information

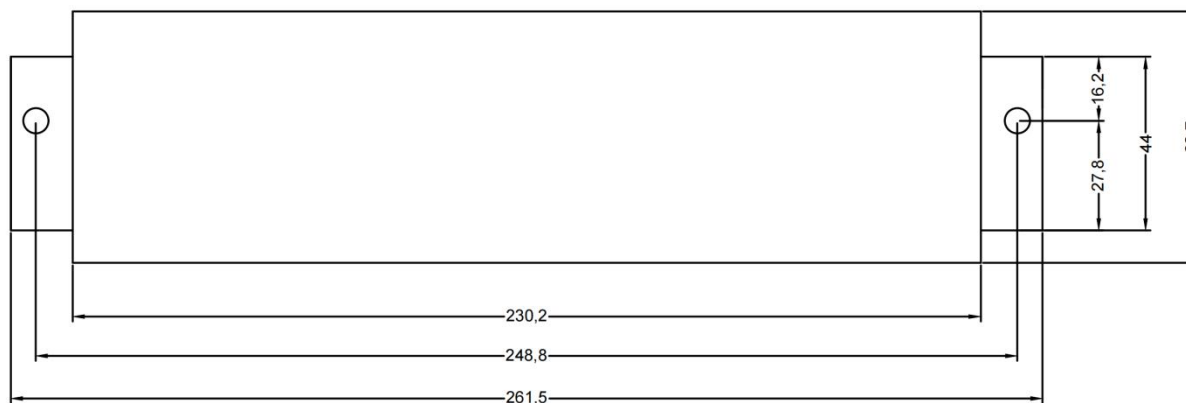
## 1.1. naming convention



## 1.2. Product Specification

Controller Model	AIG-150E-02
Motor Model	MT02-WS-100W Brushless DC Motor
Input Voltage	Single phase 220V
Input wiring method	Single phase, three-wire (telecommunications)

## 1.3. Product Shape





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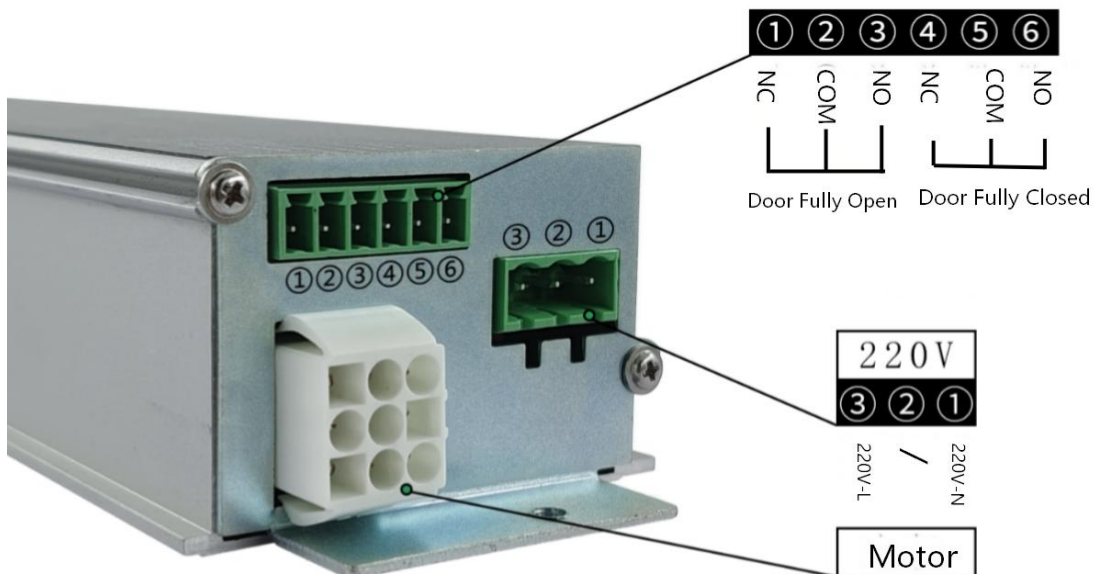
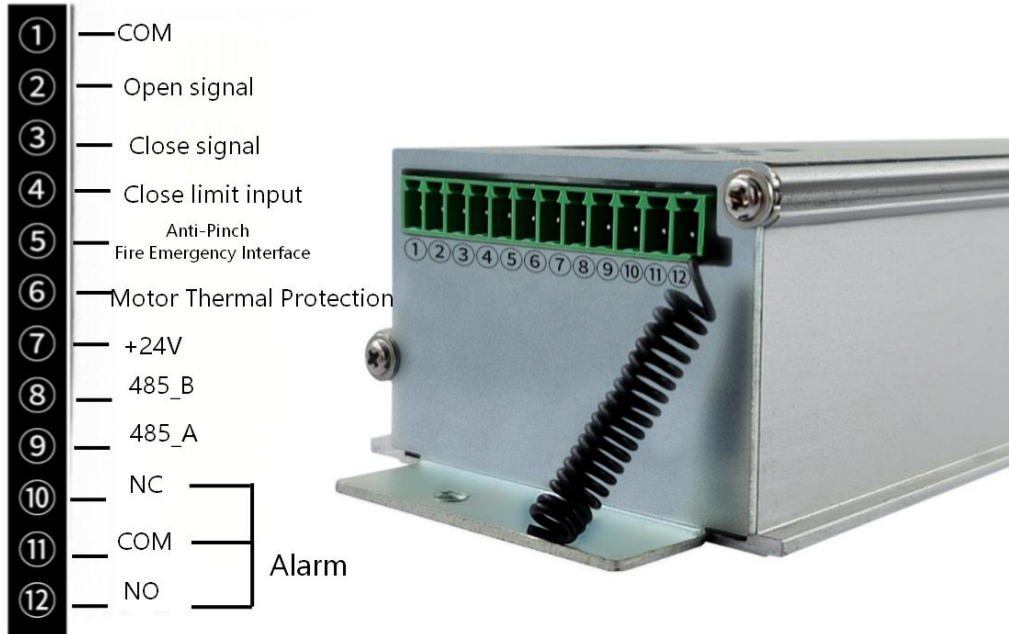
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## Chapter 2: Controller Port Description

### 1.4. Terminal Block Definition

The terminals are defined as shown below:





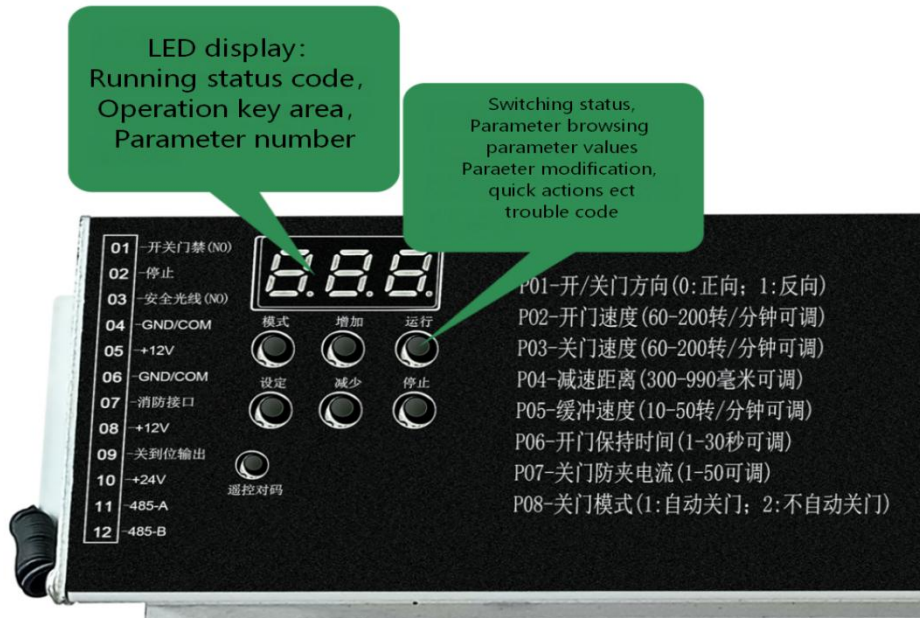
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## Chapter 3: Controller Operation and Operation

### 1.5. Description of controller keys and digital tube



### 1.6. Operating modes and digital tube display

The controller automatically enters the working mode after powering up

operating state	digital tube display	instructions
Power-on initialisation process	888	
Automatic slow closing on power up	A_c	Power-up slow door opening and closing process for automatic door width measurement
Automatic slow closing in place on power up	Aco	
Slow door opening on power up	A_o	
Power on slow door opening in place	Aoo	
Power-up slow switch door stops midway	A_U	
Open the door with normal curves	Uo1-> Uo2-> Uo3-> Uo9	Low-speed start section High-speed door opening section In-place deceleration section In-place approach section
Normal door opening in place	Uoo	
Normal curve closing	Uc1-> Uc2-> Uc3-> Uc9	Low-speed start section High-speed shutdown section In-place deceleration section In-place approach section
Normal closure in place	Uco	
Stopping in the middle of normal door	U_U	



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opening and closing		
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Press 'Mode' button to switch to parameter mode in working mode

### 1.7. Parameter mode and digital tube display

parameter state	digital tube display	instructions
Parameter number view	PXX	Press 'Increase', 'Decrease' button to browse and select the parameter number, press 'Set' button to enter the parameter value modification state, press 'Mode Press 'Mode' key to return to working mode
Parameter value modification	XXX	Press 'Increase', 'Decrease' key to modify parameter value, press 'Set' key to save modification and return to parameter number browsing status, press 'Mode Press 'Mode' key to abort the modification and return to the parameter number browsing status.

User P parameter description (accessed by pressing M):

serial number	Parameter name and unit	instructions
P01	Motor opening and closing door	Modify the value of this parameter if the gate command is opposite to the actual
P02	Opening speed	
P03	Closing speed	
P04	Length of closing deceleration	Unit mm, adjust the distance setting when the door closing process is
P05	Close the door in place low	
P06	Automatic closing delay time in	Unit second, 0 for no delayed closing
P07	Closing process blocking	The smaller the value, the higher the sensitivity of blocking detection, note that
P08	primary-secondary model	
P09	Emergency battery mode switch	0 off, 1 on
P10	Aging demo mode in place	Unit second, 0 means off aging demo mode
P11	Parameter recovery operation	Setting 1 reverts to encoder synchronous motor medical gate Setting 3 reverts to
P12	Starting torque for opening the	
P13	Door opening anti-pinch torque	
P14	Holding torque after opening the	
P15	Closing actuation torque	
P16	Closing torque	
P17	Holding torque after closing the	

Technical F Parameter Description (Press M to power up or long press M after powering up to access):

indexing	(be) wort	minimu m value	maximu m values	Functional Description
F001	0	0	1	0: Normal operating mode; 1: Motor test mode
F002	0	0	1	Motor opening and closing door direction
F003	2	1	2	Primary and secondary modes
F004	8	1	50	Closing process blocking judgement time

indexing	(be) worth	minimu m value	maximum values	Functional Description
F051				Current accumulated working hours
F052	1	0	1	Motor type (specify 1)
F053	30	10	1800	Open door high speed section speed time KP
F054	5	1	30	Open the door to high speed section speed time KP



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F005	30	1	50	Opening process blocking judgement time
F006				
F007				
F008	1	0	30	Automatic delayed closing time after opening in place (S)
F009	0	0	30	Demonstration mode in place after delay interval time (S)
F010				
F011				
F012				
F013				
F014	15	1	50	Off in place blocking turn judgement time
F015	10	1	50	Open in place blocked turn judgement time
F016				
F017				
F018				
F019				
F020				
F021				
F022				
F023				
F024				
F025				
F026				
F027	0	0	1	Door type (domestic/commercial)
F028				
F029	3	1	4	1 for encoder motors, 3 for Hall motors
F030				
F031				
F032	4	2	100	Number of motor pole pairs
F033	24	24	4096	Number of motor encoder lines
F034	15	1	200	Motor reduction ratio
F035	40	20	100	Synchronous wheel diameter (mm)
F036	100	10	1800	Open door start acceleration speed ring KP
F037	3	1	30	Open the door and start the acceleration speed ring KI
F038	100	10	1800	Door opening in place deceleration speed ring KP
F039	3	1	30	Door opening in place deceleration speed ring KI
F040	100	10	1800	Close the door to start the acceleration speed ring KP
F041	3	1	30	Close the door to start the acceleration speed ring KI
F042	150	10	1800	Deceleration speed ring KP for closing the door in place
F043	3	1	30	Closed in place deceleration speed ring KI

F055	5	1	100	Current ring KP
F056	100	1	500	Current ring KI
F057	20	1	200	Current ring KC
F058	30	10	1800	Shutdown high-speed section speed ring KP
F059	5	1	30	Shutdown high speed section speed ring KI
F060				
F061	100	1	300	Length of door opening start deceleration section (mm)
F062	50	10	80	Semi-opening range (%)
F063	300	100	999	Length of deceleration section for opening the door in place (mm)
F064	30	10	100	Length of opening and closing door in place tolerance section (mm)
F065	6	1	8	Open door in place tolerance time (s)
F066				
F067				
F068	180	60	200	Door opening speed (rpm)
F069	20	10	50	Door Opening in Place Segment Speed (rpm)
F070	15	10	30	Open door tolerance section speed (rpm)
F071	5	1	9	Holding speed after opening door in place (rpm)
F072	2	1	10	Acceleration during door opening
F073	1	1	10	Deceleration acceleration of the door opening process
F074	750	50	800	Door opening starting torque (unit 10mA)
F075	700	50	800	Door opening anti-pinch torque (unit 10mA)
F076	15	20	300	Holding torque after opening the door in place (unit 10mA)
F077	80	1	300	Length of deceleration section for door closing start (mm)
F078				
F079	300	100	999	Length of deceleration section for closing the door in place (mm)
F080				
F081	6	1	12	Closed door in place tolerance time (s)
F082				
F083				
F084	170	60	200	Closing speed (rpm)
F085	20	10	50	Speed of closing in place segment (rpm)
F086	15	10	30	Closing tolerance segment speed (rpm)
F087	5	1	9	Holding speed after closing the door in place (rpm)
F088	1	1	10	Acceleration during closing
F089	1	1	10	Deceleration acceleration of the closing process
F090	750	50	800	Closing start-up torque (unit 10mA)
F091	600	50	800	Closed door anti-pinch torque (unit 10mA)
F092	80	20	300	Holding torque after closing the door in place (unit 10mA)
F093				



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F044				
F045				
F046				
F047	0	0	9999	Technician password
F048				Expiry date setting1
F049				Expiry date setting2
F050				Number of days to set the expiry date

F094				
F095	0	0	999	Holding time after switching door in place (s)
F096	4	1	8	Switchgate start-up time (s)
F097	0	0	1	Battery mode switch
F098	25	10	80	Slow switching door speed (rpm)
F099	25	10	60	Door width measurement speed (rpm)
F100				Measured value of door width

## Chapter 4: Troubleshooting

name (of a thing)	instructions	Cause analysis or treatment
E01	hardware overcurrent	Contact the manufacturer for processing
E02	Encoder/Hall Failure	Disconnect the power to check the motor wiring plug and then restart, contact the manufacturer to deal with
E03	phase imbalance	Check power supply, contact manufacturer for treatment
E04	Overvoltage at shutdown	Check power supply, contact manufacturer for treatment
E05	Overvoltage during operation	Check power supply, contact manufacturer for treatment
E06	Current Detection Fault	Contact the manufacturer for processing
E07	boot failure	Increased starting torque
E08	lit. opening of the door is blocked	Check slides, door jamming
E09	obstructed closing of shop	Check slides, door jamming
E14	Data storage failure	Contact the manufacturer for processing
E15	Motor overspeed fault	Contact the manufacturer for processing
E16	motor reversal fault	Contact the manufacturer for processing
E18	Motor overload	Check slides and loads, contact manufacturer
E30	Controller expired	Contact the manufacturer for processing
E31	Controller authorisation	Contact the manufacturer for processing



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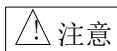
# Chapter 5: Safety Information and Precautions

## 1.8. Security Definition:

In this manual, safety precautions are divided into the following two categories:



⚠ 危险: Hazards caused by failure to operate as required, which may result in serious injury or even death



⚠ 注意: Hazards caused by failure to operate as required, which may result in moderate or minor injuries and damage to equipment

Users are requested to read this chapter carefully when installing, commissioning and servicing this system, and be sure to follow the safety precautions required by the contents of this chapter. Any injuries and damages caused by non-compliant operation will not be related to our company.

## 1.9. Safety Matters :

pre-installation		<ul style="list-style-type: none"> <li>◆ Do not install the controller if you find it broken when you open the box!</li> <li>◆ Do not install if the packing list does not match the physical name!</li> </ul>
		<ul style="list-style-type: none"> <li>◇ It should be handled gently or there is a risk of damage to the equipment!</li> <li>◇ Do not touch the components of the controller with your hands, otherwise there is a risk of electrostatic damage!</li> </ul>
installation		<ul style="list-style-type: none"> <li>◆ Please install on a flame-retardant object such as metal; keep away from combustible materials. Otherwise it may cause fire!</li> <li>◆ The fixing screws of the device components must not be unscrewed !</li> </ul>
		<ul style="list-style-type: none"> <li>◇ Do not allow wire heads or screws to fall into it. Otherwise it causes damage to the controller!</li> <li>◇ Please install the controller in a place with little vibration and out of direct sunlight.</li> </ul>
wiring		<ul style="list-style-type: none"> <li>◆ It is essential that the guidance in this manual is followed and that the work is carried out by a professional electrical engineer, otherwise unexpected hazards may arise!</li> <li>◆ The controller must be separated from the power supply by a circuit breaker or a fire may occur!</li> <li>◆ Please correctly regulate the grounding of the controller according to the standard, otherwise there is a risk of electric shock!</li> <li>◆ Never connect the input power supply to the output terminals (U, V, W) of the controller. Pay attention to the markings on the terminals and do not connect the wrong wires! Otherwise cause damage to the controller!</li> </ul>
		<ul style="list-style-type: none"> <li>◇ Ensure that the wiring fitted complies with EMC requirements and the safety standards of the area in which it is located. Refer to the recommendations in the manual for the diameter of the wires used. Otherwise accidents may occur!</li> <li>◇ The encoder must use a shielded cable and the shield must be reliably grounded at one end!</li> <li>◇ Communication cables must be shielded twisted-pair cables with a stranding distance of 20 to 30 mm and the shielding layer grounded!</li> </ul>
pre-power-on		<ul style="list-style-type: none"> <li>◆ The controller must be covered before powering up. Failure to do so may cause electric shock!</li> <li>◆ The wiring of all peripheral accessories must comply with the instructions in this</li> </ul>



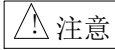
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manual and be wired correctly according to the circuit connection methods provided in this manual. Failure to do so causes accidents!

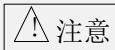
- ◇ Please confirm whether the voltage level of the input power supply is the same as the rated voltage level of the controller; whether the wiring position on the power supply input terminal and output terminal is correct; and pay attention to check whether there is a short circuit in the peripheral circuit connected with the controller; whether the connected line is tight, otherwise it will cause damage to the controller!



after  
power-on



- ◆ Do not open the cover after powering up. Otherwise there is a risk of electric shock!
- ◆ Do not touch any input or output terminals of the controller. Otherwise there is a danger of electric shock!
- ◆ If parameter identification is required, please be aware of the danger of injury during motor rotation. Failure to do so may cause an accident!
- ◆ Do not change the controller manufacturer's parameters at will. Failure to do so may cause damage to the equipment!
- ◆ Do not touch the cooling fan and braking resistor to test the temperature. Failure to do so may cause injury!
- ◆ Non-professional technicians should not test the signals during operation. Failure to do so may cause personal injury or equipment damage!
- ◇ During operation of the controller, it should be avoided that anything falls into the device. Otherwise cause damage to the device!
- ◇ Do not use the contactor on/off method to control the start/stop of the controller. Otherwise cause equipment damage!
- ◇ The controller has been tested for safety regulations before shipment, please do not perform voltage withstand and insulation impedance tests, which may cause damage to the controller!



maintenance  
time



- ◆ Do not carry out repairs and maintenance on the equipment with electricity. Otherwise there is a danger of electric shock!
- ◆ Do not repair or maintain the controller without professional training. Failure to do so may result in personal injury or equipment damage!
- ◆ Parameters must be set after replacing the controller, and all pluggable inserts must be plugged in and out with the power off!



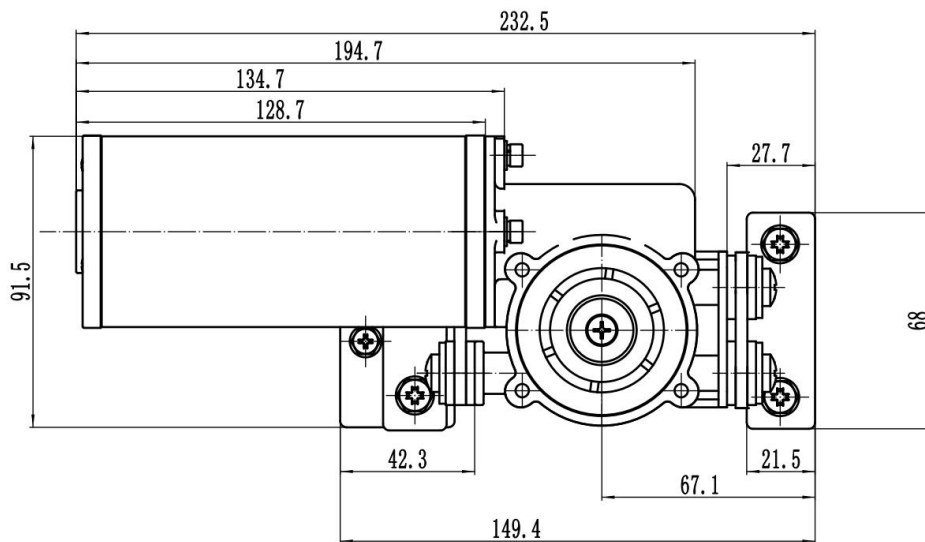
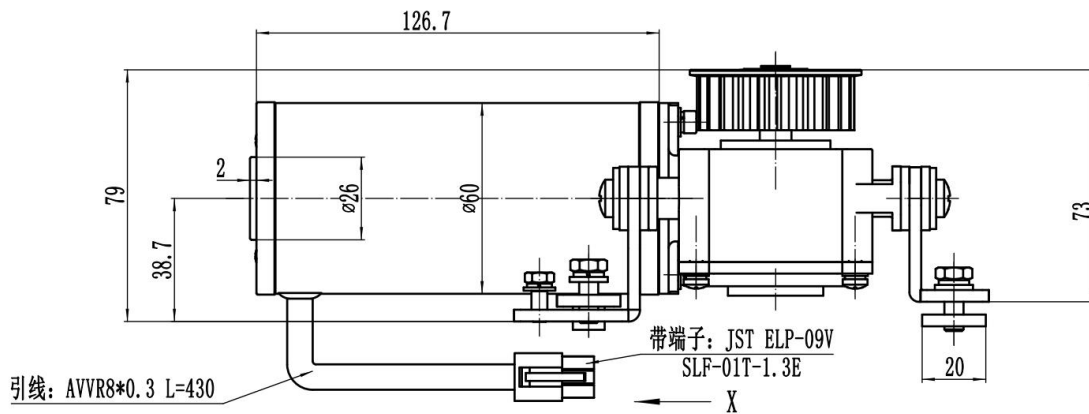
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## Chapter 6: Motor parameters

Product Model	MT02-WS-100W	Diethylammonium chloride	Brushless DC motor
rating	100W	rated voltage	24V
rated current	5A	Optical motor speed without load	2880r/min
Rated load speed of motor	1850r/min	Gearbox Ratio	1:15
Rated torque	0.65 N.m	blocking torque	0.95N.m
Motor weight	2.8Kg		



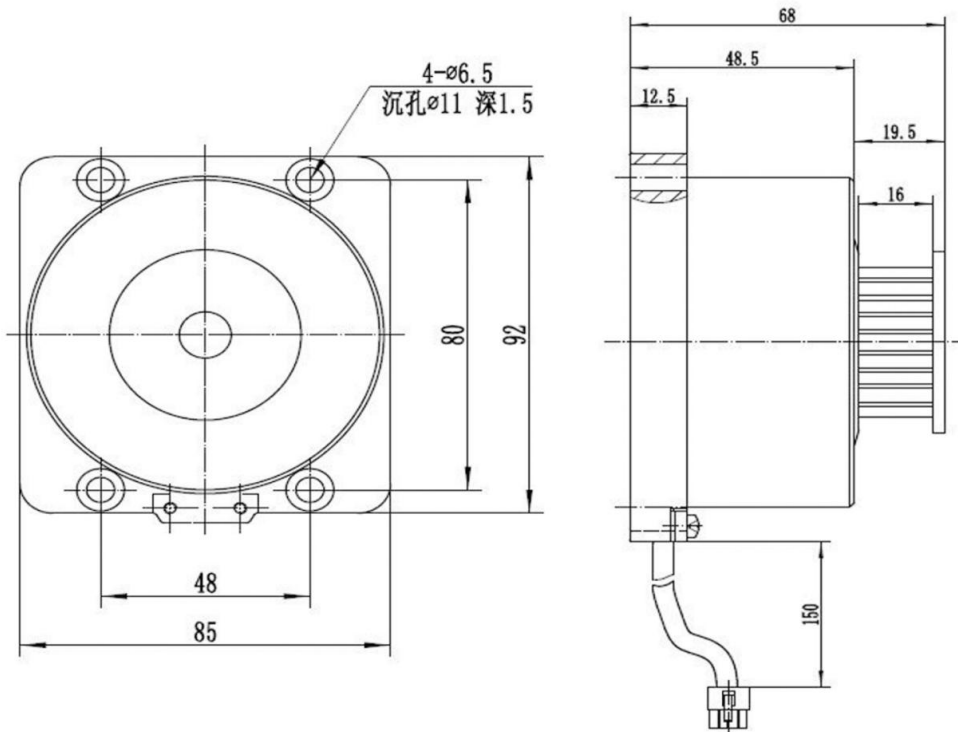


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Product Model	MT01-YC-43W	Driver Type	DC Permanent Magnet Servo Motor
rated voltage	DC 24 V	rating	43W
No-load current	<0.6A	No-load speed	318±5rpm
Rated torque	1.8 N.m	Maximum torque	≥ 5 N.m
rated current	3 A	Rated efficiency	60 per cent
rated speed	224 rpm	current limit	7 A
Insulation class	B	operating temperature	-20°C~50°C
extremity	20	Power cord specifications	3×1.0mm <sup>2</sup> +5×0.2mm <sup>2</sup>
waterproof rating	IP51	weights	1.3KG
thread length	150		



Revision of curriculum vitae		
revision date	revised version	revision
2024-04-01	Ver 1.0	first edition
2024-04-17	Ver 1.1	Modify Fault Code
2024-08-23	Ver 2.0	Addition of a description of technical parameters
2024-09-05	Ver2.1	Additional refinement of parameter descriptions



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