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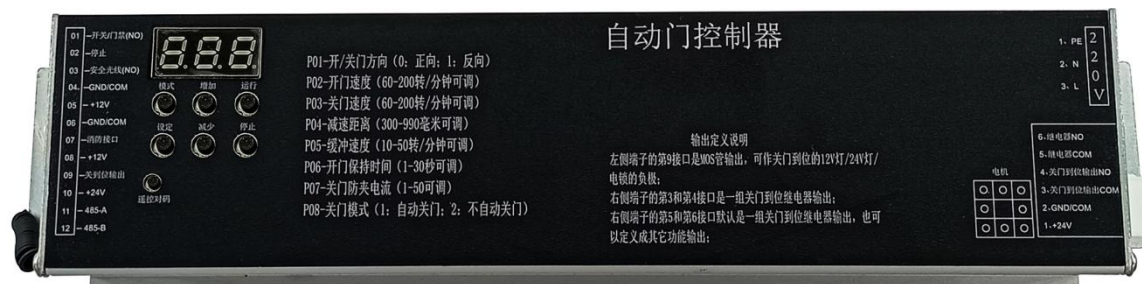
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Medical door/Sliding door Controller

AIG-150P-0X

Manual VER2.1



Before operating the controller, please read this manual carefully and keep it properly for future reference.



Catalogue

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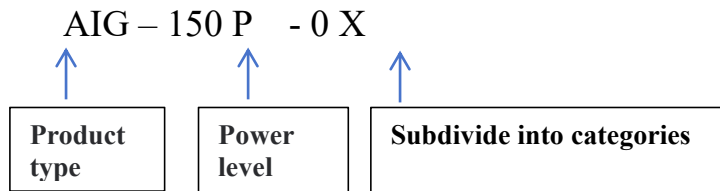
Safety Instructions

1. This instruction manual describes the usage methods and precautions for the sliding door operator controller. Users must thoroughly and carefully read this manual before installing or using this product.
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 socket to supply more than two electrical appliances.
4. When the power cord is connected to the power socket, it must be ensured that the voltage meets the nameplate voltage requirements.
5. The grounding wire of the power cord must be connected to the system grounding wire of the production plant with an appropriate sized wire and connector, and this connection must be permanently fixed.
6. Repairs or advanced maintenance can only be performed by properly trained electromechanical technicians.
7. All repair parts must be provided and approved by our company before they can be used.



Chapter 1 Product Information

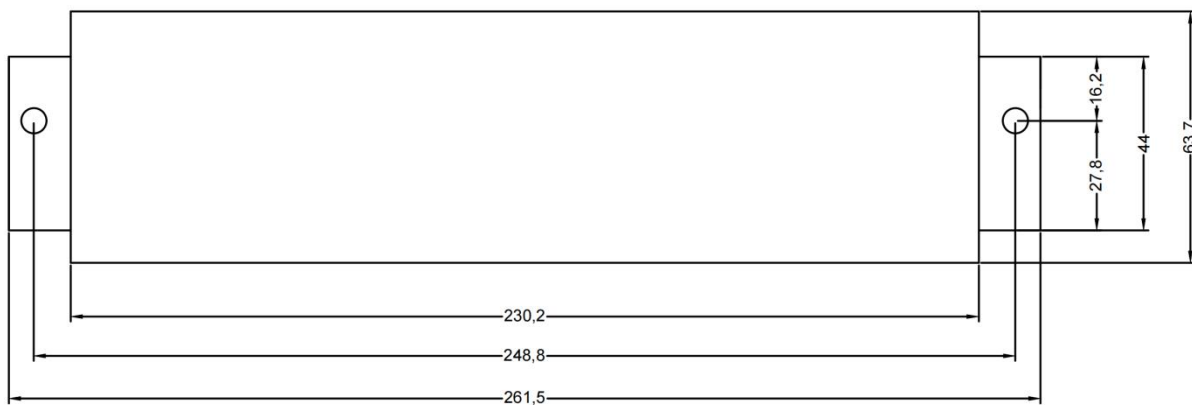
1.1.Naming Rules



1.2.Product Specifications

Controller Model	AIG-150P-0X (01: with servo motor, 02: with DC brushless motor)
Motor Model	MT02-WS-100W DC brushless motor
Motor Model	MT01-YC-43W Permanent magnet servo motor
Input voltage	Single-phase 220V
Input wiring method	Single-phase three-wire

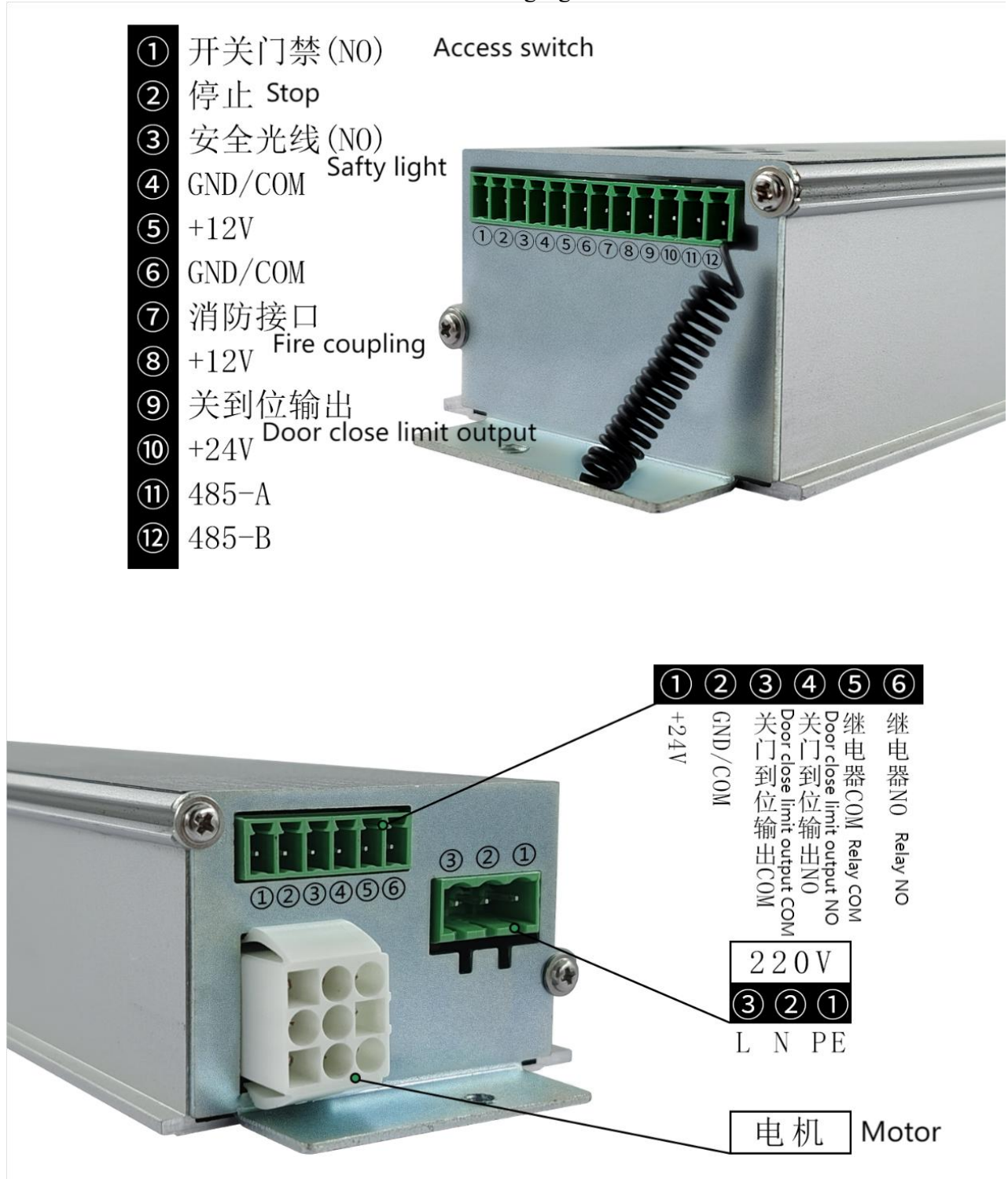
1.3.Product outline drawing (unit: mm)



Chapter 2 Controller Port Description

2.1.Terminal block definition

The terminal definitions are shown in the following figure:



Chapter 3 Controller Operation and Run

3.1.Controller Button and Digital Display Description



3.2.Working mode and digital tube display

The controller automatically enters working mode after power-on.

Work status	Digital tube display	illustrate
Power-on initialization process	888	
Auto Slow Closing on Power-up	A_c	The power-on slow door opening and closing process is used to automatically measure the door width.
Auto Slow Close to Limit on Power-up	Aco	
Slow Open on Power-up	A_o	
Slow Open to Limit on Power-up	Aoo	
Stop During Power-on Slow Open/Close	A_U	
Normal curve door opening	Uo1-> Uo2-> Uo3-> Uo9	Low-speed start-up phase, high-speed door opening phase, deceleration phase, and approach phase.
Normal Open Limit	Uoo	
Normal Speed Curve Close	Uc1-> Uc2-> Uc3-> Uc9	Low-speed start-up phase, high-speed door closing phase, deceleration phase, and approach phase.
Normal Close Limit	Uco	
Stop During Normal Open/Close	U_U	



Press the 'Mode' button in working mode to switch to parameter mode.

3.3.Parameter mode and digital tube display

Parameter status	Digital tube display	illustrate
Parameter Number Browsing	PXX	Use the 'Increase' and 'Decrease' buttons to browse and select parameter numbers, press the 'Set' button to enter parameter value modification mode, and press the 'Mode' button to return to working mode.
Parameter value modification	XXX	Use the 'Increase' and 'Decrease' buttons to modify the parameter value, press the 'Set' button to save the changes and return to the parameter number browsing state, and press the 'Mode' button to discard the changes and return to the parameter number browsing state.

User P parameter description (press M to enter):

serial number	Parameter name and unit	illustrate
P01	Motor opening and closing	Modify this parameter value when the door opening/closing command is
P02	Door opening speed	
P03	Closing speed	
P04	Door closing deceleration	The unit is mm. Adjust this distance setting if the door closes too quickly
P05	Door closed at low speed	
P06	Automatic door closing delay	The unit is seconds, 0 indicates no delay in closing the door.
P07	Door closing process stall	The smaller the value, the higher the sensitivity of stall detection. Note
P08	First-time and second-time	
P09	Emergency Battery Mode	0 Off, 1 On
P10	Aging demonstration mode	The unit is seconds; 0 indicates that the aging demonstration mode is off.
P11	Parameter recovery operation	Setting 1 restores the medical door to an encoder synchronous motor;
P12	Door opening start torque	
P13	Door opening anti-pinch	
P14	Maintain torque after the door	
P15	Door closing start torque	
P16	Door closing anti-pinch torque	
P17	Maintain torque after the door	

Technical F parameter description (press the M key to power on or press and hold the M key after powering on to enter):

index	value	Minimum value	Maximum value	Function Description
F001	0	0	1	0: Normal working mode; 1: Motor test mode

index	value	Minimum value	Maximum value	Function Description
F051				Current cumulative working hours (hours)



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F002	0	0	1	Motor opening and closing door direction
F003	2	1	2	First-time and second-time modes
F004	8	1	50	Door closing process jam judgment time
F005	30	1	50	Door opening process jam
F006				
F007				
F008	1	0	30	Automatic delay (s) after the door is
F009	0	0	30	Delay interval (s) after demonstration mode is in place
F010				
F011				
F012				
F013				
F014	15	1	50	Time for determining when to close the blockage
F015	10	1	50	Time to determine when the vehicle is in position and is stuck
F016				
F017				
F018				
F019				
F020				
F021				
F022				
F023				
F024				
F025				

F052	1	0	1	Motor type (specify 1)
F053	30	10	1800	Opening high-speed section speed
F054	5	1	30	Opening the door at high speed, turning KI
F055	5	1	100	Current loop KP
F056	100	1	500	Current loop KI
F057	20	1	200	Current loop KC
F058	30	10	1800	Closing the door, high-speed section
F059	5	1	30	Closing the door at high speed, turning KI
F060				
F061	100	1	300	Length of deceleration
F062	50	10	80	Half-open door width (%)
F063	300	100	999	Length of the deceleration section
F064	30	10	100	Door opening/closing tolerance length (mm)
F065	6	1	8	Door opening tolerance time (s)
F066				
F067				
F068	180	60	200	Door opening speed
F069	20	10	50	Door opening speed
F070	15	10	30	Door opening tolerance speed (rpm)
F071	5	1	9	Maintain speed (rpm) after the door is fully open.
F072	2	1	10	Acceleration during door opening
F073	1	1	10	Deceleration and acceleration during door
F074	750	50	800	Door opening and starting torque (unit:
F075	700	50	800	Door opening anti-pinch torque (unit: 10mA)



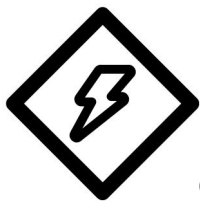
F026				
F027	0	0	1	Door type (residential/commercial)
F028				
F029	3	1	4	1 is an encoder motor, 3 is a Hall
F030				
F031				
F032	4	2	100	Number of pole pairs of motor
F033	twenty	twenty four	4096	Motor encoder line count
F034	15	1	200	Motor reduction ratio
F035	40	20	100	Synchronizer pulley diameter
F036	100	10	1800	Door opening start acceleration speed
F037	3	1	30	Door opening and acceleration speed ring KI
F038	100	10	1800	Door opening position deceleration speed
F039	3	1	30	Door opening position
F040	100	10	1800	Door closing start acceleration speed
F041	3	1	30	Door closing and starting acceleration speed
F042	150	10	1800	Door closing position
F043	3	1	30	Door closing position
F044				
F045				
F046				
F047	0	0	9999	Technician password
F048				Validity setting 1
F049				Validity setting 2
F050				Validity period set in days

F076	15	20	300	Maintain torque (in 10mA) after the door is fully open.
F077	80	1	300	Length of deceleration section when closing the door and starting (mm)
F078				
F079	300	100	999	Length of the deceleration section
F080				
F081	6	1	12	Door closing tolerance time (s)
F082				
F083				
F084	170	60	200	Door closing speed (rpm)
F085	20	10	50	Door closing speed (rpm)
F086	15	10	30	Door closing tolerance speed (rpm)
F087	5	1	9	Maintain speed (rpm) after the door is fully closed.
F088	1	1	10	Acceleration during door closing
F089	1	1	10	Deceleration and acceleration during door
F090	750	50	800	Door closing and starting torque (unit:
F091	600	50	800	Door closing anti-pinch torque (unit: 10mA)
F092	80	20	300	Maintain torque (in 10mA) after the door is
F093				
F094				
F095	0	0	999	Hold time (s) after the door is fully open or
F096	4	1	8	Door opening/closing start time (s)
F097	0	0	1	Battery mode switch
F098	25	10	80	Slow door opening/closing speed (rpm)
F099	25	10	60	Width measurement speed (rpm)
F100				Width measurement value



Chapter 4 Trouble Description and Simple Troubleshooting

name	illustrate	Cause analysis or handling
E01	Hardware overcurrent	Contact the manufacturer for assistance.
E02	Encoder/Hall Failure	Power off the motor, check the wiring connectors, restart, and contact the manufacturer for assistance.
E03	undervoltage	Check the power supply and contact the manufacturer for assistance.
E04	Overvoltage during shutdown	Check the power supply and contact the manufacturer for assistance.
E05	Overvoltage during operation	Check the power supply and contact the manufacturer for assistance.
E06	Current detection fault	Contact the manufacturer for assistance.
E07	Startup failed	Increase starting torque
E08	Door opening obstructed	Check for obstructions in the slide rails and door panels.
E09	Door closing obstructed	Check for obstructions in the slide rails and door panels.
E14	Data storage failure	Contact the manufacturer for assistance.
E15	Motor overspeed fault	Contact the manufacturer for assistance.
E16	Motor reverse rotation fault	Contact the manufacturer for assistance.
E18	Motor overload	Check the slide rails and load; contact the manufacturer for assistance.
E30	Controller expired	Contact the manufacturer for assistance.
E31	Controller authorization	Contact the manufacturer for assistance.



Chapter 5 Safety Information and Precautions

5.1.Security definition:

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

Failure to operate according to instructions may result in serious injury or even death.

Dangers arising from improper operation may result in moderate or minor injury, or equipment damage.

Users are advised to carefully read this chapter when installing, debugging, and repairing this system, and to strictly follow the safety precautions outlined herein. Our company is not responsible for any injury or loss caused by improper operation.

5.2.Safety Precautions :

Before installation		◆ Do not install the device if you find the controller is damaged upon unpacking ! ◆ Do not install if the packing list does not match the actual product name!
		✧ Handle with care during transport , otherwise there is a risk of damaging the equipment! ✧ Do not touch the components of the controller with your hands, otherwise there is a risk of electrostatic damage!
During installation		◆ Please install on a flame-retardant surface such as metal; keep away from flammable materials. Otherwise, it may cause a fire!
		◆ Do not loosen the screws securing the equipment components ! ✧ Do not allow wire ends or screws to fall into it. Otherwise, it will damage the controller! ✧ Please install the controller in a place with minimal vibration and away from direct sunlight.
When wiring		◆ The instructions in this manual must be followed and the work must be carried out by a professional electrical engineer; otherwise, unexpected dangers may occur! ◆ There must be a circuit breaker between the controller and the power supply, otherwise a fire may occur! ◆ Please ground the controller correctly and according to the standard specifications, otherwise there is a risk of electric shock! ◆ Never connect the input power supply to the controller's output terminals (U, V, W). Pay attention to the terminal markings and do not connect the wires incorrectly! Otherwise, you may damage the controller!
		✧ Ensure that the wiring meets EMC requirements and the safety standards of the area. Refer to the manual for recommendations on the wire gauge used. Otherwise, an accident may occur! ✧ The encoder must use shielded wire, and the shielding layer must ensure reliable grounding at one end! ✧ Communication lines must use shielded twisted-pair cables with a twist pitch of 20-30mm, and the shielding layer must be grounded!
Before powering on		◆ The controller must be powered on only after the cover is closed. Otherwise, it may cause electric shock! ◆ All wiring of external components must comply with the instructions in this



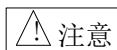
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manual, and the wiring must be done correctly according to the circuit connection methods provided in this manual. Otherwise, accidents may occur!

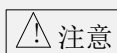
- ✧ Please confirm that the voltage level of the input power supply is consistent with the rated voltage level of the controller; that the wiring positions on the power input and output terminals are correct; and check for short circuits in the external circuits connected to the controller; ensure that the connected wires are secure, otherwise the controller may be damaged!



After
powering
on



- ◆ Do not open the cover after powering on. Otherwise, there is a risk of electric shock!
- ◆ Do not touch any of the controller's input or output terminals. Doing so poses a risk of electric shock!
- ◆ If parameter identification is required, please be aware of the risk of injury from a rotating motor. Otherwise, an accident may occur!
- ◆ Do not arbitrarily change the controller manufacturer's parameters. Doing so may damage the equipment!
- ◆ Do not touch the cooling fan or braking resistor to test the temperature. Doing so may cause injury !
- ◆ Do not attempt to test signals while the equipment is running if you are not a qualified technician. Doing so may result in personal injury or equipment damage!
- ✧ During controller operation, prevent objects from falling into the equipment. Doing so could damage the equipment!
- ✧ Do not use contactors to control the start and stop of the controller. Doing so will damage the equipment!
- ✧ The controller has undergone safety testing before leaving the factory. Please do not perform withstand voltage and insulation resistance tests, as this may damage the controller!



During
maintenanc
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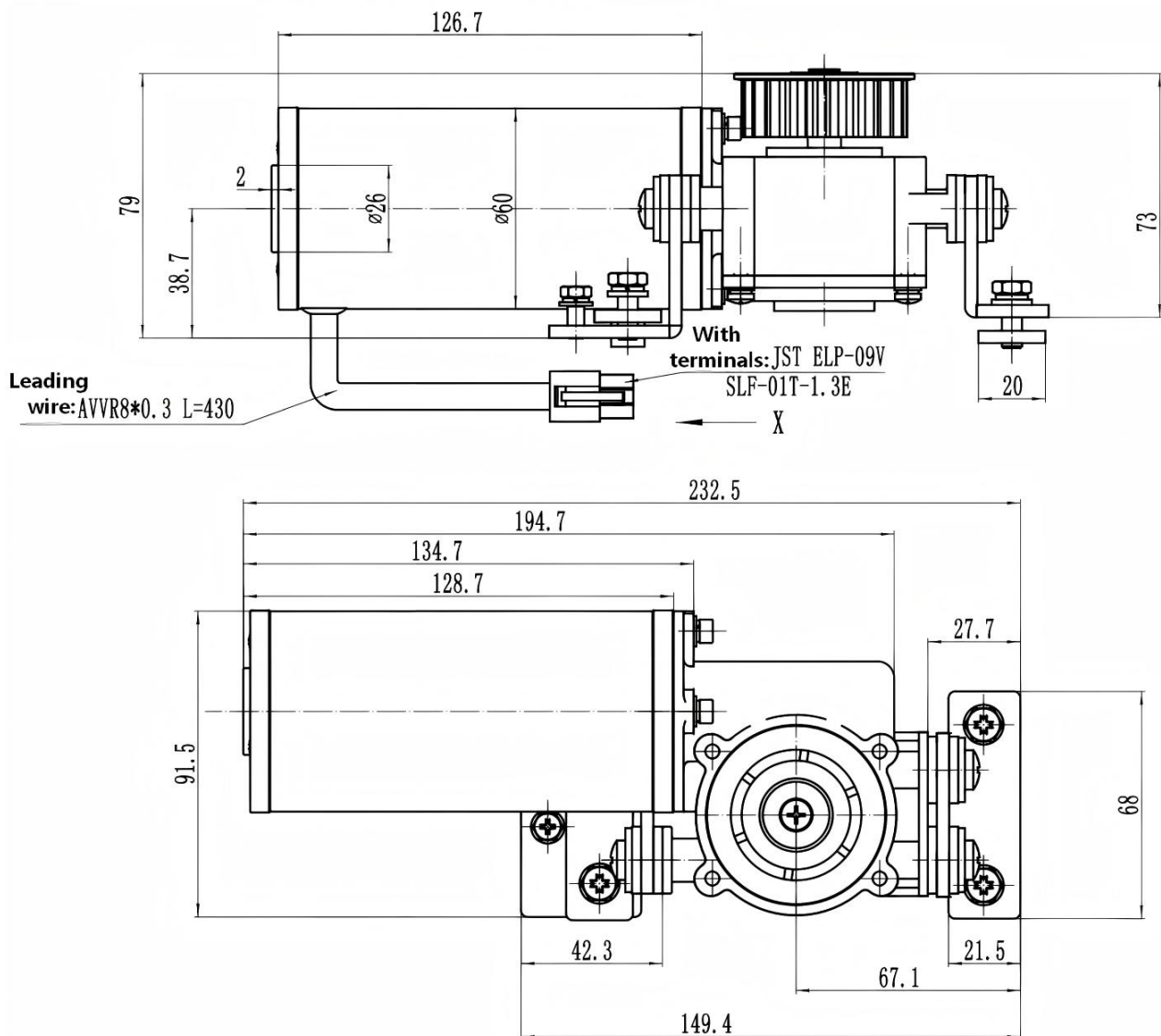


- ◆ Do not perform repairs or maintenance on the equipment while it is powered on. Doing so may result in electric shock!
- ◆ Do not attempt to repair or maintain the controller without proper training. Doing so may result in personal injury or equipment damage!
- ◆ After replacing the controller, the parameters must be set, and all pluggable plugs must be plugged in or unplugged while the power is off!



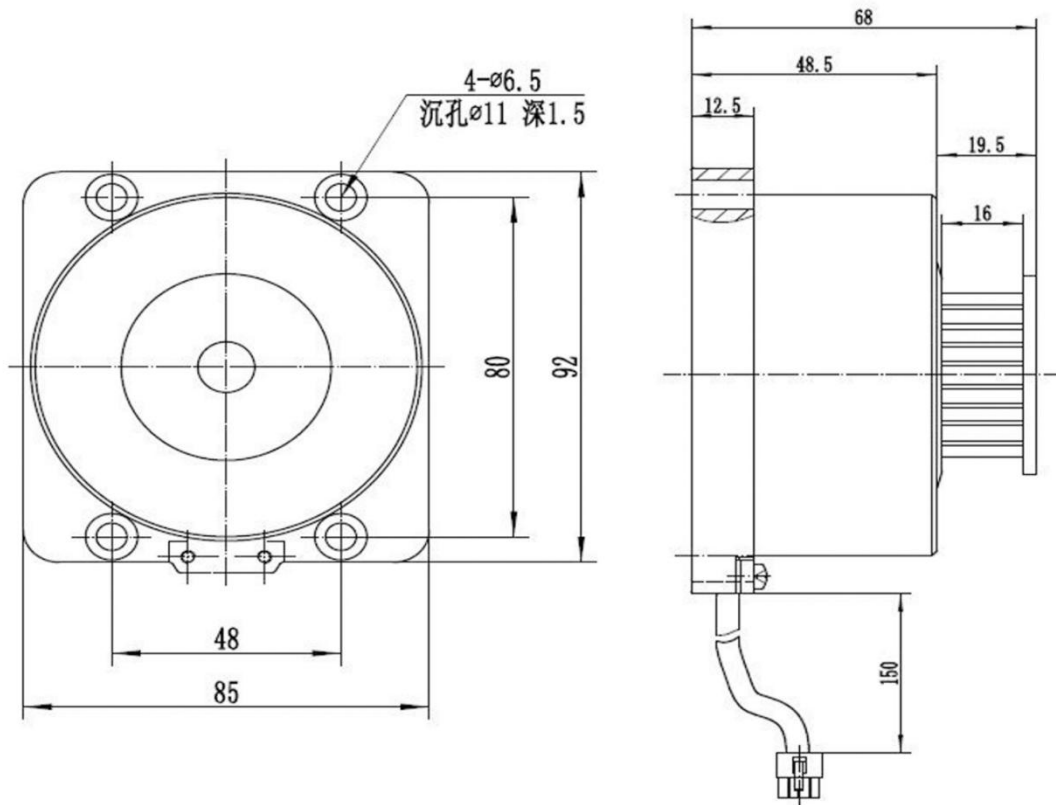
Chapter 6 Motor parameters

Product Model	MT02-WS-100W	Product Name	DC brushless motor
Rated power	100W	Rated voltage	24V
Rated current	5A	Photoelectric no-load speed	2880r/min
Motor rated load speed	1850r/min	Gearbox speed ratio	1:15
Rated torque	0.65Nm	Stall torque	0.95Nm
Motor weight	2.8Kg		





Product Model	MT01-YC-43W	Drive Model	DC Permanent Magnet Servo Motor
Rated voltage	DC 24 V	Rated power	43W
No-load current	<0.6A	No-load speed	318±5rpm
Rated torque	1.8 N.m	Max. torque	≥ 5 N.m
Rated current	3 A	Rated efficiency	60%
Rated speed	224 rpm	Current limiting	7 A
Insulation grade	B	Operating temperature	-20°C~50°C
Pole number	20	Power cord specification	3×1.0mm ² +5×0.2mm ²
Waterproofing grade	IP51	Weight	1.3KG
Wire length	150		





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Revise resume		
Revision Date	Revised version	Revisions
2024-04-01	Ver 1.0	First Edition
2024-04-17	Ver 1.1	Modify fault codes
2024-08-23	Ver 2.0	Add technical parameter descriptions
2024-09-05	Ver2.1	Supplement and improve parameter descriptions

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