

Electric Linear Actuator

1500N Linear Actuator

3000N Linear Actuator

8000N Linear Actuator

12000N Linear Actuator

Sliding Table Linear Actuator

Stepper Motor Linear Actuator

Electric Lifting Column

3000N Lifting Column

8000N Lifting Column

TATAMI Lifting Column

TV Lifting Column

Scissor Lift Table

Lifting Standing Desk

DIHOO[®]

DIHAO ELECTRIC ZHEJIANG CO.,LTD.

IPS-HSI

Instruction Manual



CB CE

Protection to Fix Card

Thank you very much for using our products.

Product Model		Purchase Date	
Purchase Store			
Order Number			
Name			
Contact Information			
After-sales Address			
Quality Problem Statement			

Warranty

365 days from purchase date

Warranty Regulations

1. Any damage to the equipment due to improper use will also result in the automatic termination of the warranty period.
2. Within 7 days of receiving the product, the damage caused by express transportation can be returned to Amazon for replacement. Or contact the DIHOOL seller for low-cost recycling
3. Within 365 days of receiving the product, if there is any quality problem, you can contact us through the Amazon for replacement.

INTRODUCTION

IPS-HS1 is a programmable synchronous Hall controller with RS485 serial port, mainly used to control 1-4 Hall electric linear actuators and Hall electric lift to operate synchronously. The HS1 controller uses a voltage of 24~36V, total circuit current of less than 16A. This product can be controlled by sensors and buttons, and can be paired with PLC programming to control multiple lifts. Please strictly refer to the motor standard setting program. Incorrect program settings can damage the motor.

MAIN TECHNICAL PARAMETERS

Model: IPS-HS1
Input Voltage: DC 24V~36V
Output Voltage: DC 24V~36V
Maximum Current: 16A
Receiving Frequency: RF433MHz
Remote Control Battery: 23A 12V
Working Temperature: -20°C ~ +70°C
Storage Temperature: -20°C~ +90°C
Working Humidity: < 80%
Control Motor Type: 6-pin Hall Wire
Control The Number Of Motors: 1~4 pcs
Key Mode: Press Once Continuous Work

DEFAULT ACCESSORIES

Controller
Hand Controller
DC30V Power
USB to RS485 cable
Remote Control (without battery)

OPTIONAL ACCESSORIES

Metal Waterproof Button
Hand Controller
Foot Controller
Programmable Logic Controller
Photoelectric Sensor

FUNCTION

- ① Position display, 4 position memory.
- ② 1-4 motors running synchronously, 1-4 motors run synchronously, automatically adjusting the motor speed to maintain balance (error<0.5CM)
- ③ RS485 communication(no protocol), Capable of programming control
- ④ Automatic error reporting for motor faults to prevent single motor operation
- ⑤ Automatically rebound when encountering resistance, avoiding hand pinching
- ⑥ Programmable any position as the lowest position, programmable stroke length (<Max Stoke)

CONTROLLER PROGRAMMING

Note: You need to consult us before you can modify the controller. Please do not modify randomly, it will cause the electric actuator to not work.

You Need to record every value (n01-n12) before modification

1. Enter settings: Press the S button to display "S -", press the "1, 2, 3" button to display 'n00'
2. After entering the settings menu, Use the "Λ"/"V" keys to adjust to the corresponding function code, Press the "S" key to enter the function code setting parameters, And adjust the parameters by pressing "Λ" or "V".
3. After completing programming, press the "S" button for 3 seconds to save

Controller Setting Code

Code	Instruction	Range	Refer Value
n00	Gear Ratio	1~999	
n01	Reduction Ratio	0.01~99.9	20. 0
n02	Reset Rebound Height Value	0~99.9	0.08
n03	Lowest Position Display Value	0~999	
n04	Maximum Stroke Value	0~999	
n05	Rebound Height When Encountering Obstacles	0~99.9	01.0
n06	The Curret Of Rebound When Encountering Obstacles	0~9.9	01.0
n07	The max up working current of the motor	0~09.0	03. 0
n08	The max down working current of the motor	0~09.0	02. 0
n09	Reset Type (0: Limit Switch, 1: Motor Stuck)	0, 1	0
n10	Control The Number Of Motors	1~4	4
n11	Hall Pulse Number	0~999	6
n12	Reset Force(When n09=1)	1~9	3

**Warning: If the motor with limit switches, please set n09 to 0;
If the motor without limit switch,
please set n09 to 1 and n12 to 2~4, n12 > 4 may damage the motor**

Error Codes and Solutions

RtS	Controller Needs To Be Reset	Press "V" Button, Waiting For Display 00.0
Eb1	Motor 1 Hall Signal Abnormal	Check Motor 1
Eb2	Motor 2 Hall Signal Abnormal	Check Motor 2
Eb3	Motor 3 Hall Signal Abnormal	Check Motor 3
Eb4	Motor 4 Hall Signal Abnormal	Check Motor 4
ER1	Motor 1 Overload	Check load balance or increase the value of n07 Warning n07 ≤ 06.0
ER2	Motor 2 Overload	
ER3	Motor 3 Overload	
ER4	Motor 4 Overload	
ER5	Motor 1/2/3/4 locked	Check Motors or Replace Motor
ER6	Control Hardware Abnormal	Replace The Controller Power Outage Restart
ER7	Hand Controller Abnormal	Replace the Hand controller Re Plug The Hand Controller Cable And Restart
ER8	Motor Encounters Obstacles	Check Device Increase The Value Of n06
ER9	Hall Signal Error Too Large	Motor Reset Replacing The Motor
ERR	Hall Signal Instability/Controller Error	Replace the controller Power Outage Restart

If there is an error code in the controller, please refer to the manual and precautions as soon as possible. Incorrect settings can easily damage the motor. If you are unsure how to set it up, you can contact us through WeChat (8615669851253) and we can help you solve the problem through video calls.

Warning: Please strictly follow the instructions for setting up

Serial Port Command Code

Serial baud rate: 9600, 1-bit start bit, 8-bit data bit, 1-bit stop bit, CRCL verification
Communication interface: RS485 or 232. No protocol

	Controller No	Function Code	Motor Bits		Data Bits		Crcl Verification	
STOP	01	06	00	01	00	01	19	CA
UP	01	06	00	01	00	02	59	CB
DOWN	01	06	00	01	00	04	D9	C9
RESET	01	06	00	01	00	08	D9	CC
Motor 1 Position	01	06	00	02				
Motor 2 Position	01	06	00	03				
Motor 3 Position	01	06	00	04				
Motor 4 Position	01	06	00	05				
Modify Device No.	00	06	00	0A	00	02	29	D8
Query Device No.	00	03	00	0A	00	02	E5	D8
Read Position Of Motor 1	01	03	00	02	00	01	25	CA
Read Position Of Motor 2	01	03	00	03	00	01	74	0A
Read Position Of Motor 3	01	03	00	04	00	01	C5	CB
Read Position Of Motor 4	01	03	00	05	00	01	94	0B
Response	01	03	02					

Serial baud rate: 9600, 1-bit start bit, 8-bit data bit, 1-bit stop bit, CRCL verification
Communication interface: RS485 or 232. No protocol

	Controller No	Function Code	Motor Bits		Data Bits		byte	Motor 1 position	
Motor 1-2 Position	01	10	00	02	00	02	04		
Motor 1-3 Position	01	10	00	02	00	03	04		
Motor 1-4 Position	01	10	00	02	00	04	04		

Note:

The yellow block represents the hexadecimal height bits

The green block is the device number

The white block represents the motor height position and needs to be converted to hexadecimal

Black block is empty

Mitsubishi PLC Programming

Can enable the lift to achieve automated control of lifting and lowering

Complete Project

- ① The staircase has become an elevator
- ② Regular lifting and lowering of the noodle cooker
- ③ Electric retractable dining table
- ④ Automatic shooting booth
- ⑤ Adult and child pop-up shopping screens
- ⑥ Sand table display screen
- ⑦ Smart trash can
- ⑧ 8-column elevator
- ⑨ Laser marking machine lifting system
- ⑩ Electric glass door

on	Motor 2 position		Motor 3 position		Motor 4 position		Crcl Verification	

8 remote can be learned

Remove the cover and find a small circuit board, See **Figure 1**.

1. click the **learning button**, the **LED** light will always on.
2. click any button on the remote, The **LED** light will flashes, and then it will gose out if matched success.
3. you can check if has matched success by clicking any button on the remote if it can light the **LED** light.

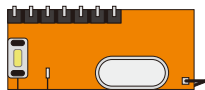
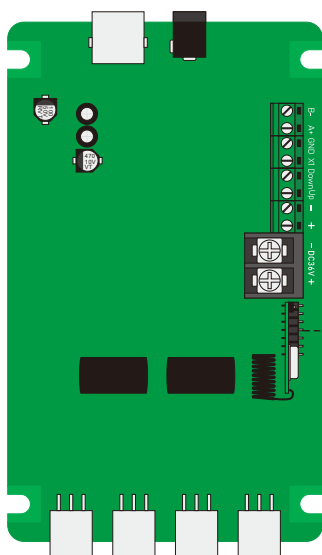
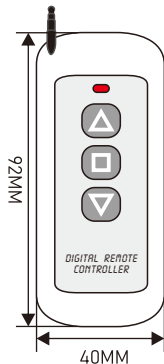
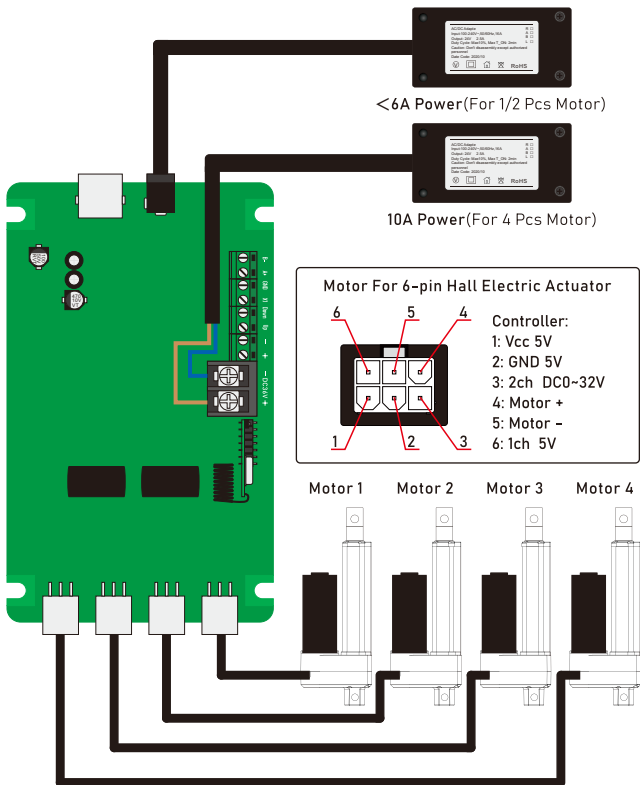


Figure 1.

LED
Learning Button





The extension length of the wire of the handle controller is 2.5 meters. Please connect according to the picture.

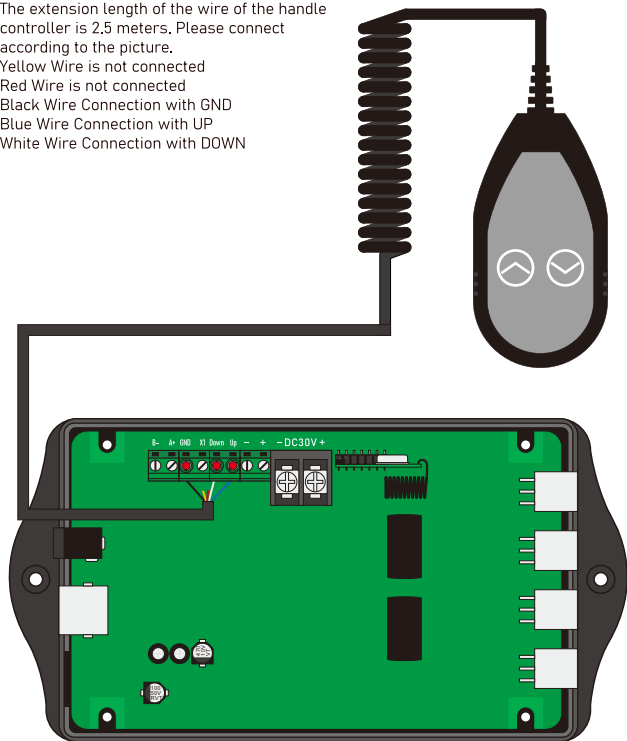
Yellow Wire is not connected

Red Wire is not connected

Black Wire Connection with GND

Blue Wire Connection with UP

White Wire Connection with DOWN

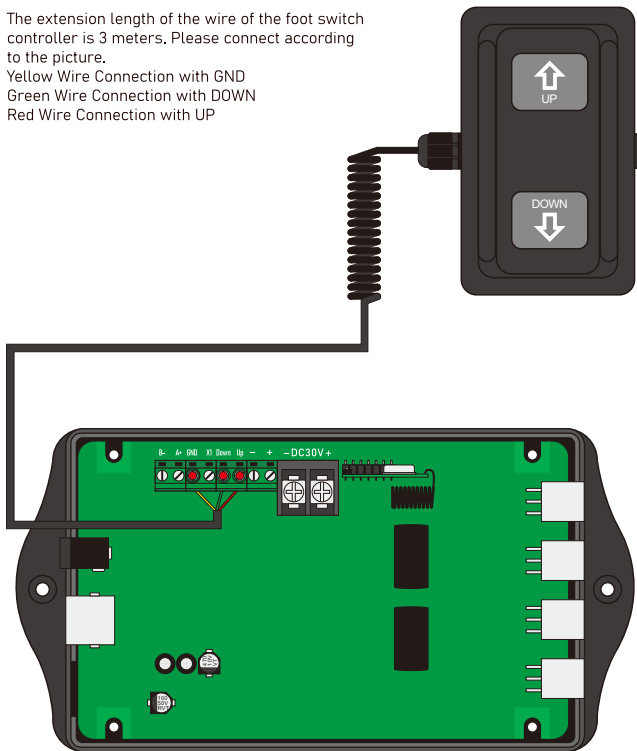


The extension length of the wire of the foot switch controller is 3 meters. Please connect according to the picture.

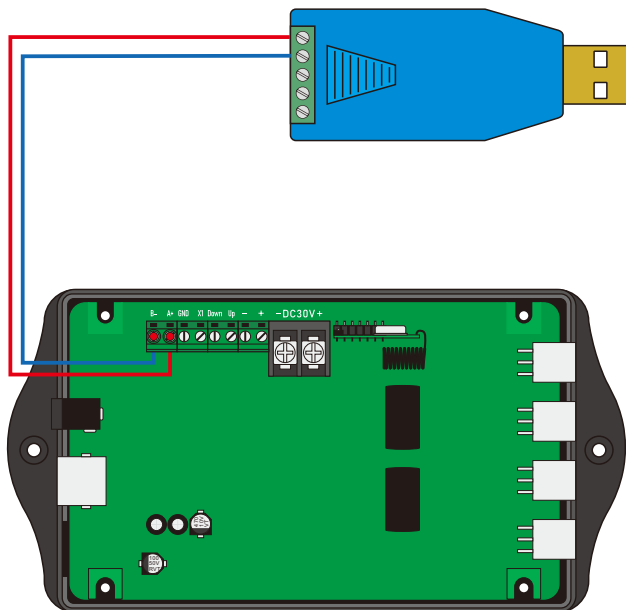
Yellow Wire Connection with GND

Green Wire Connection with DOWN

Red Wire Connection with UP



You need to download the software that can communicate with the RS485 serial port
You can control through the following code or edit the UI interface
Baud Rate: 9600, Data Bit 8, Stop Bit: 1, crcl verification



The photoelectric induction switch needs to be purchased and installed through the following figure; It can realize inductive door opening and door closing, and can apply intelligent trash cans, intelligent breeding cages, etc

PROGRAM SETTINGS

Press "S 3 2 1" key for to enter the setting

A01: Set the up working time (00.0)

A02: Set stop time (000)

A03: Set the Down working time (05.0)

A04: Set 0: Motor Working does not affect 1: Motor Working Affects (1)

When lift up working , sensing an object, the lift will stop, signal disappears, lift Down working 5.0 CM then Stopped,

Press "S 3 2 1" key for to enter the setting

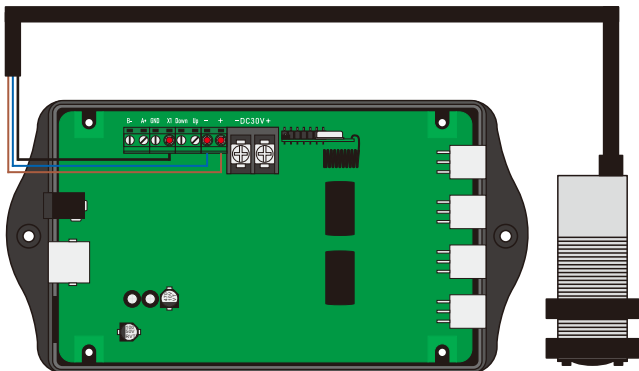
A01: Set the up working time (05.0)

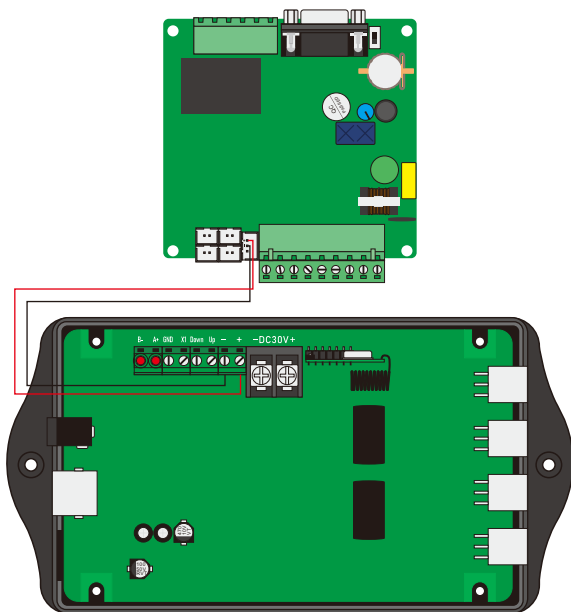
A02: Set stop time (005)

A03: Set the Down working time (05.0)

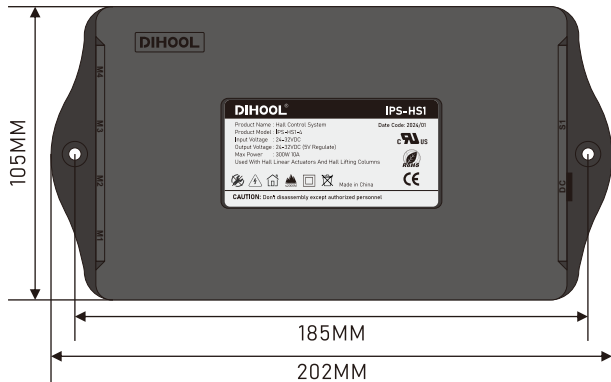
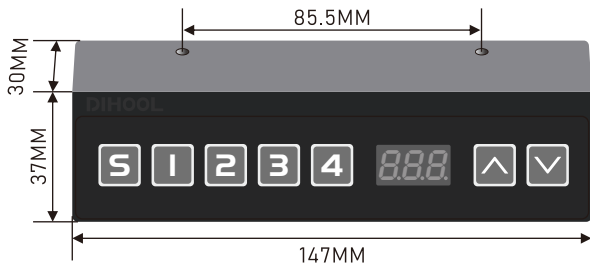
A04: Set 0: Motor Working does not affect 1: Motor Working Affects (0)

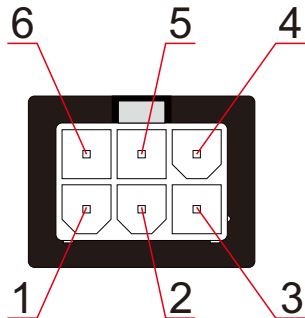
The lift was stepped, When sensing an object, the lift will up working 5.0cm then stop, The object disappears, the lift Pause for 5 seconds, then down working 5.0cm then stop





Dimensions



Controller Wiring Instructions

Controller:

1: Vcc 5V

2: GND 5V

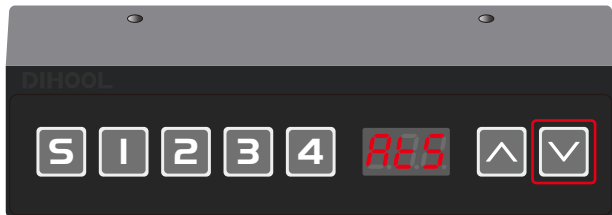
3: 2ch DC0~32V

4: Motor +

5: Motor -

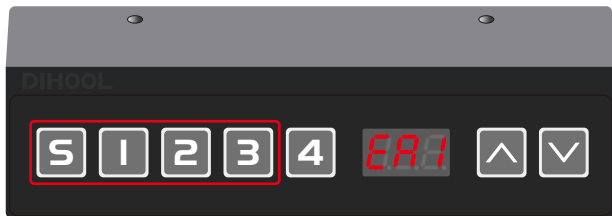
6: 1ch 5V

Common Error Code



Error code 'RTS'.

Please press the 'V' key, and it cannot be released. The motor drops to the bottom and rebounds again. The screen will display '0', release the V key. Reset successfully



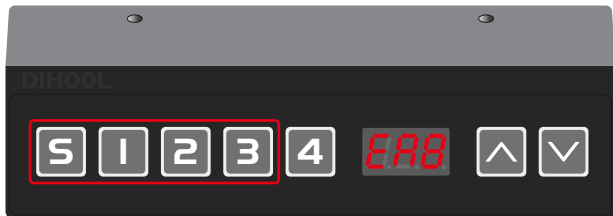
Error code 'ER1/ER2/ER3/ER4'.

Please press the 'S 1 2 3' key, Enter settings

View the parameters of n07/n08 on page 3,

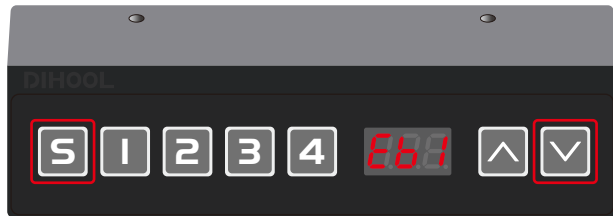
If the motor up working shows ER1, you need to increase the value of n07

If the motor down working shows ER1, you need to increase the value of n08



Error code 'Er8'.

1. The motor rebounds when encountering obstacles
 2. If there are no obstacles, press S 1 2 3 to enter the settings
- View the parameters of n07/n08 on page 3, increase the n06 value



Error code 'Eb1/Eb2/Eb3/Eb4'.

1. The motor cable is not inserted into the controller:
2. The motor has touched the limit switch: it needs to press "S" to display "S -", then press "V" for 3 seconds to reset
3. If step 2 cannot be restored, it indicates that the motor is damaged