

# Linear Actuator

## 6. 1-Axis Controller

### 6-1. HIWIN 1-Axis Controller

LAK2LR

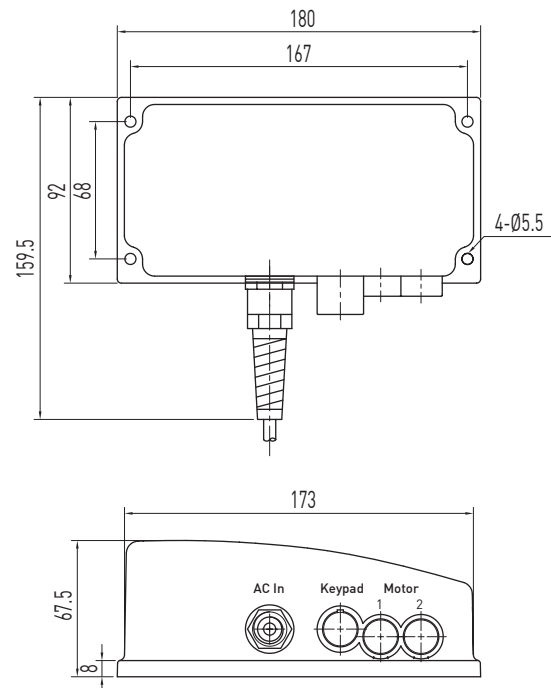


Table 6.1 Specifications

Input voltage	AC 100 / 110 / 220 / 230V(50/60Hz)
Output power	108VA (24VDC) max.
Duty cycle	10%
Protection	IP54
Working temp.	+5°C~40°C

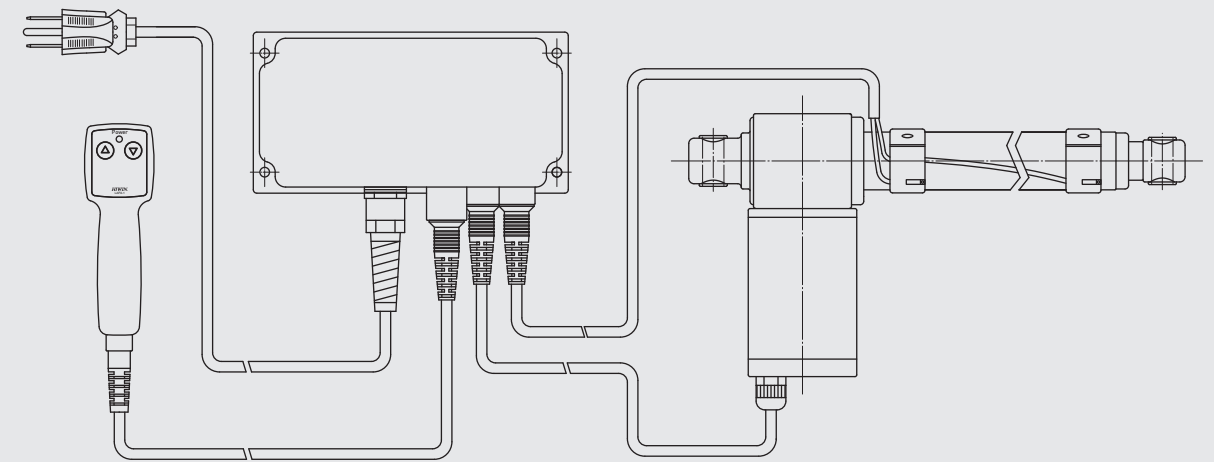
### Option:

IP66

### Features of the LAK2LR

- Controls 1 linear Actuator
- Controls 1 Actuator with external limit switches
- OLP (Over Load Protection)
- Standard cable length: 4M
- Electronic protection for the relays

For Series LAM1 completed with external limit switches



### Ordering Information

<b>LAK2LR - G - 110 - B E</b>			
Actuator No. 1	Input Voltage	Color	Special models according to Client's requirement
G: Over current setting value	100: AC100V; 110: AC110V 220: AC220V; 230: AC230V	B: Black G: Gray	None E = Special requirement

- \* Check attached table for over current setting...see page 55.
- \* The keypad of the LAK2LR is not the same as LAK2L.

# Linear Actuator

## 7. 2-Axis Controller

### 7-1. HIWIN 2-Axis Controller (1)

LAK2

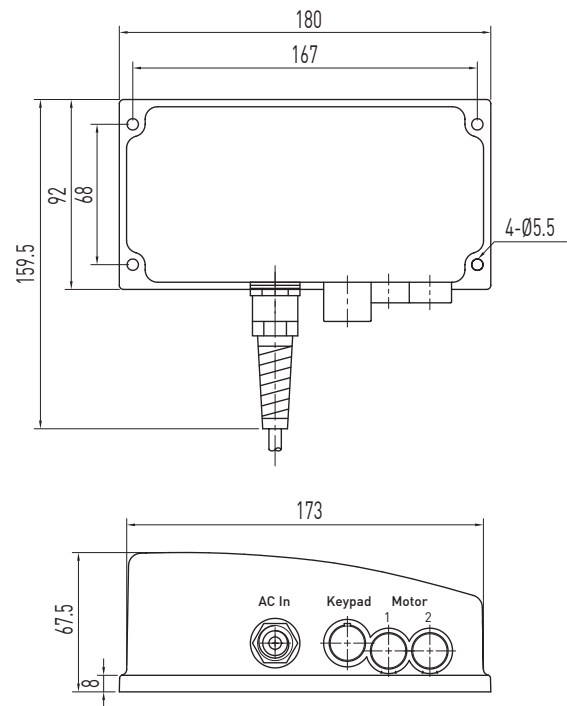


Table 7.1 Specifications

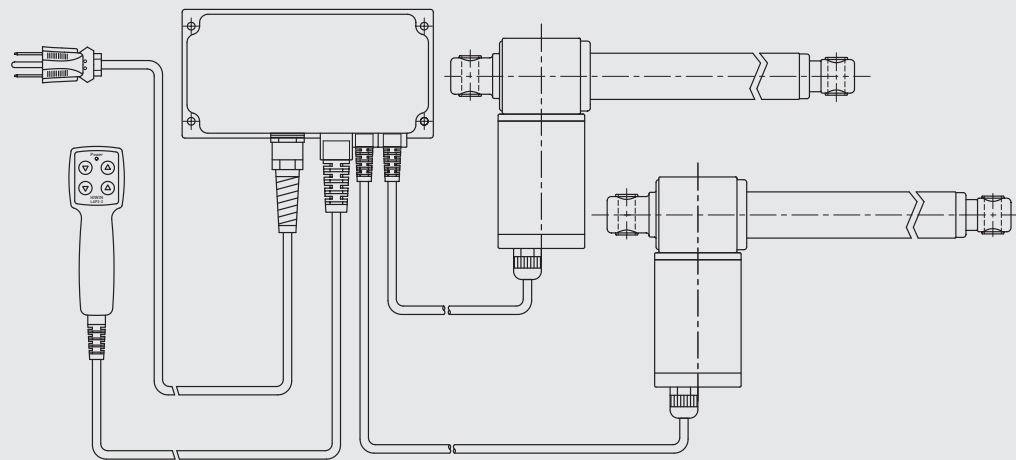
Input voltage	AC 100 / 110 / 220 / 230V (50/60Hz)
Output power	108VA (24VDC) max.
Duty cycle	10%
Protection	IP54
Working temp.	+5°C~40°C

#### Option:

- (1) IP66
- (2) DC 12V In & Out
- (3) DC 24V In & Out
- (4) UL version only for AC 120V input (Max. Output 24V/6A)

#### Features of the LAK2

- Control 1 or 2 Linear Actuators
- Over load protection
- Standard cable length: AC:4M/DC:1M
- Electronic protection of the relays



#### Ordering Information (AC Power)

<b>LAK2 - B0 - 110 - B E</b>			
Actuator No. 1~2	Input Voltage	Color	Special models according to Client's requirement
A~G: Over current setting value	100: AC100V; 110: AC110V 220: AC220V; 230: AC230V	B: Black G: Gray	None E = Special requirement

\* Check attached table for over current setting...see page 55.

#### Ordering Information (DC Power)

<b>LAK2 - E0 - 12 - B E</b>			
Actuator No. 1~2	Input Voltage	Color	Special models according to Client's requirement
A~L: Over current setting value	12: 12VDC 24: 24VDC	B: Black G: Gray	None E = Special requirement

\* Standard cable: 1M in length with 3 flying lead termination.

\* Check attached table for over current setting...see page 55.

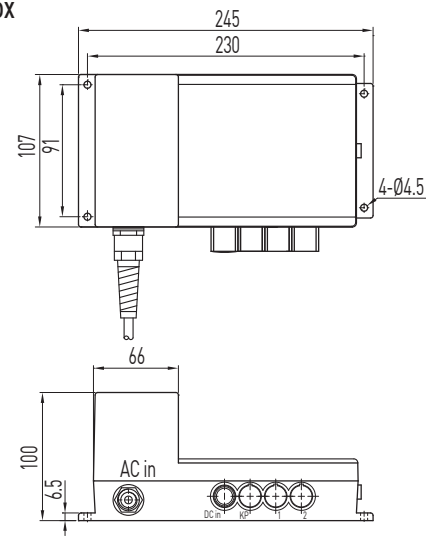
# Linear Actuator

## 7-2. HIWIN 2-Axis Controller (2)

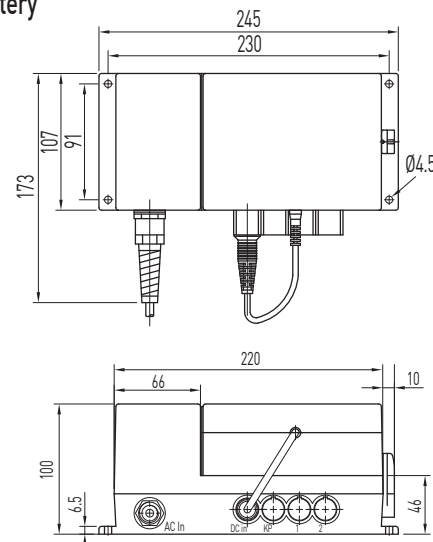
LAK2BN



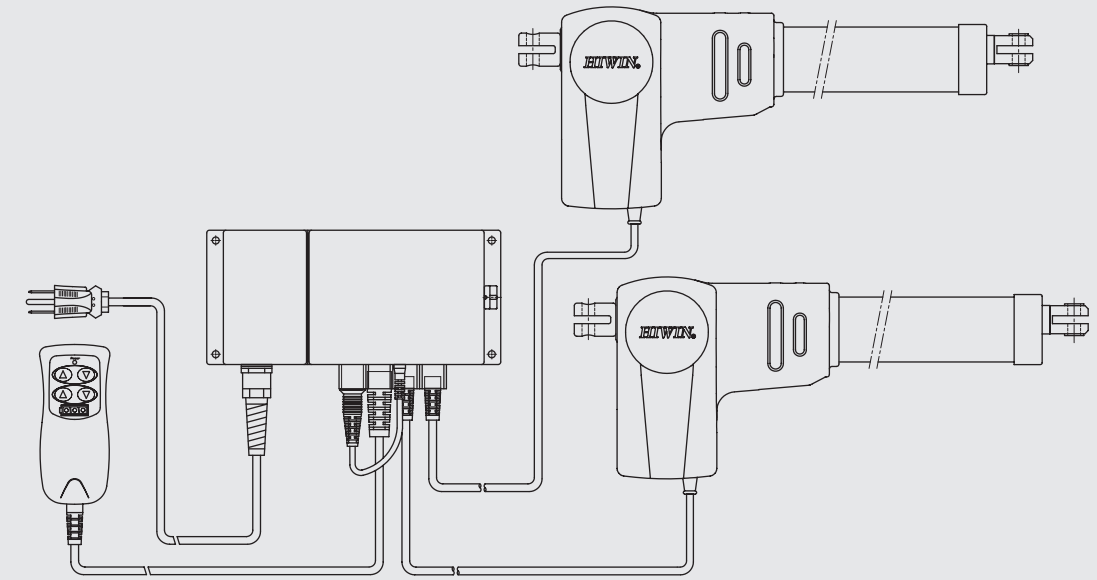
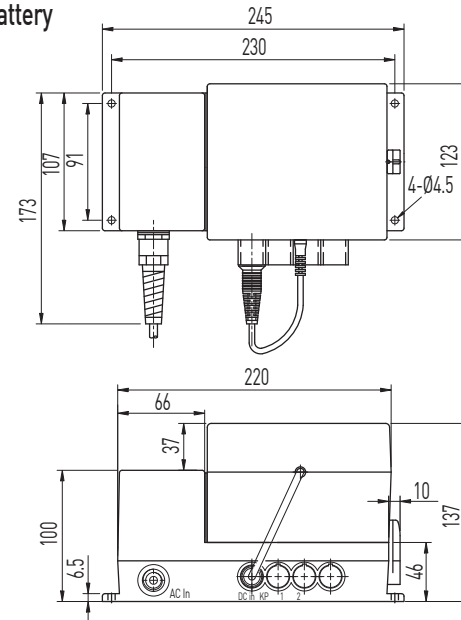
0 No Battery box



1 For 1.3Ah Battery



2 For 2.9Ah Battery



### Ordering Information

LAK2BN - 1 - D0 - 110 - B E				
Battery	Actuator No. 1~2	Input Voltage	Color	Special models according to Client's requirement
0: None Battery box	0: None	100: AC100V; 110: AC110V	B: Black	None
1: 1.3Ah	A-H: Over current setting value	220: AC220V; 230: AC230V	G: Gray	E = Special requirement
2: 2.9Ah				

\* Check attached table for over current setting...see page 55.

Table 7.2 Specifications

Input voltage	AC 100 / 110 / 220 / 230V(50/60Hz)
Output power	144VA (24VDC) max.
Duty cycle	10%
Protection	IP54
Working temp.	+5°C~40°C

### Option:

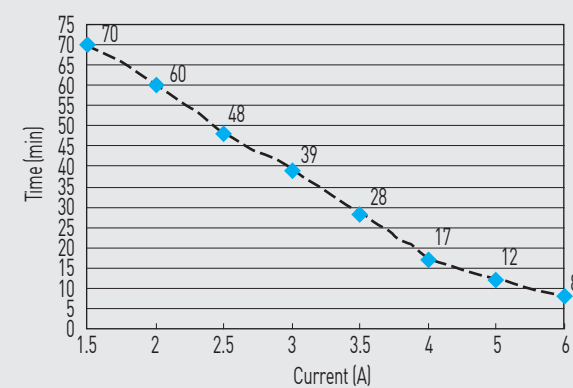
- (1) IP66
- (2) Custom program
- (3) Two axes move simultaneously
- (4) Two axes move synchronously (Actuators must have feedback)

### Features of the LAK2BN

- Control 1 or 2 Linear Actuators
- Compact size
- Over load protection
- Soft - start / stop
- Standard cable length: 4M
- Rechargeable Battery

- Low battery indicator (alarm)
- Battery capacity: 1.3Ah (12VDCx2) (Option: 2.9Ah, 12VDCx2)
- \*Note: Please charge battery for at least 8 hours before initial use.

### Current vs. Durable Period under Load (1.3Ah)

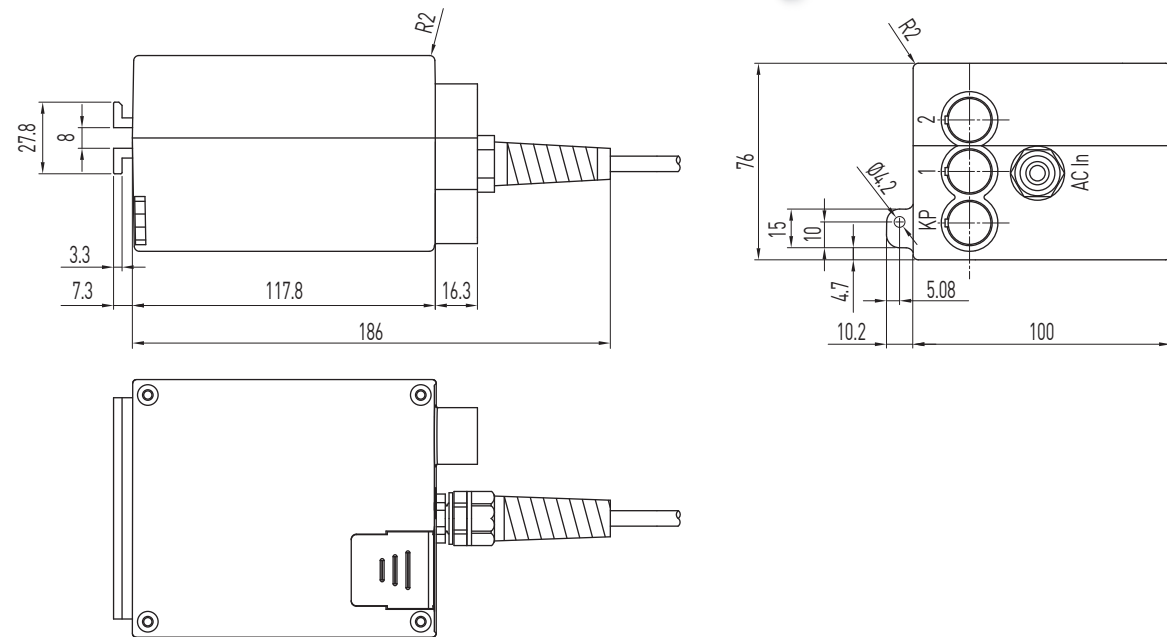


Note: 1.The test results are obtained under duty cycle 10% (2 minutes of continuous operation followed by 18 minutes of non-operation).  
2.The Test results are for reference only, actual value will be different due to the battery performance.

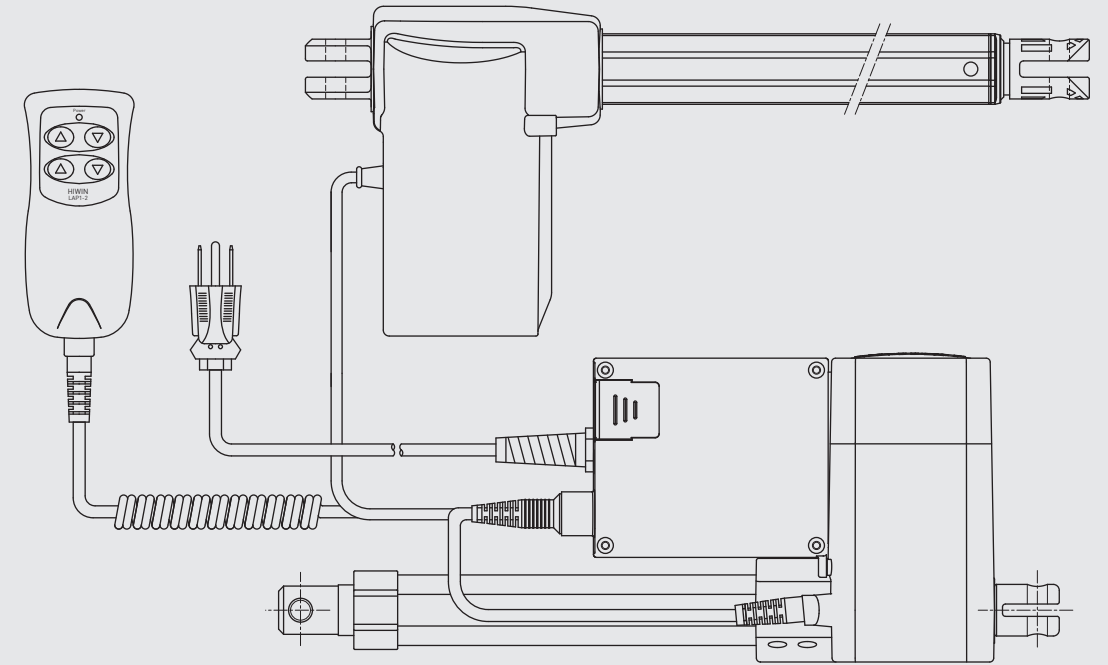
# Linear Actuator

## 7-3. HIWIN 2-Axis Controller (3)

LAK2D



LAK2D can be mounted with LAM3 or LAN5



### Ordering Information

LAK2D - 1 - D0 - 110 - G E				
Battery	Actuator No. 1~2	Input Voltage	Color	Special models according to Client's requirement
0: None	0: None	100: AC100V; 110: AC110V	B: Black	None
1: 9-volt alkaline battery	A-F: Over current setting value	220: AC220V; 230: AC230V	G: Gray	E = Special requirement

\* Check attached table for over current setting...see page 55.  
 \* LAK2D over current must be set to the same value.

Table 7.3 Specifications

Input voltage	AC 100 / 110 / 220 / 230V (50 / 60Hz)
Output power	108VA (24VDC) max.
Duty cycle	10%
Protection	IP54
Working temp.	+5°C~40°C

### Option:

(1) IP66

### Features of the LAK2D

- Control 1 or 2 Linear Actuators
- Standard cable length: 4M
- Over load protection
- During an emergency power loss, please insert 2-9V alkaline batteries to lower the actuators. (Protection class is IP54 when LAK2D is operated with batteries)

- Can be mounted directly on the LAM3 or LAN5
- \* There is no battery charge function, the 9V batteries are used for emergencies only.

# Linear Actuator

## 7-4. HIWIN 2-Axis Controller

LAK2J

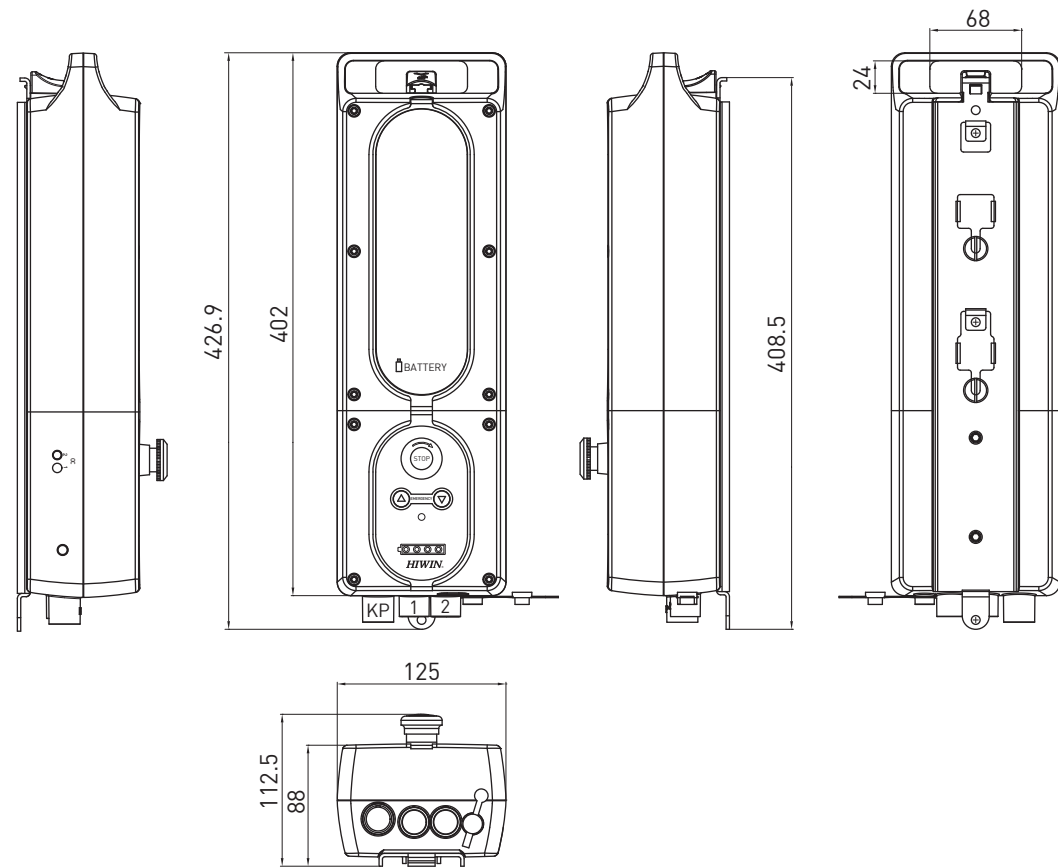


Table 7.4 Specifications

Output voltage	DC 24V
Duty cycle	10%
Protection	IP54
Working temp.	+5°C-40°C

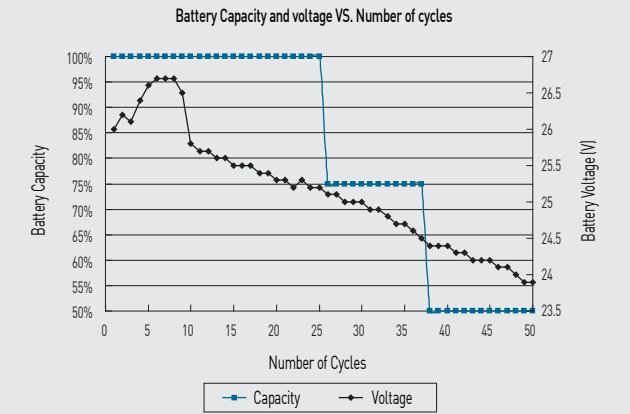
### Option:

- (1) IP65
- (2) Custom program
- (3) UL Version

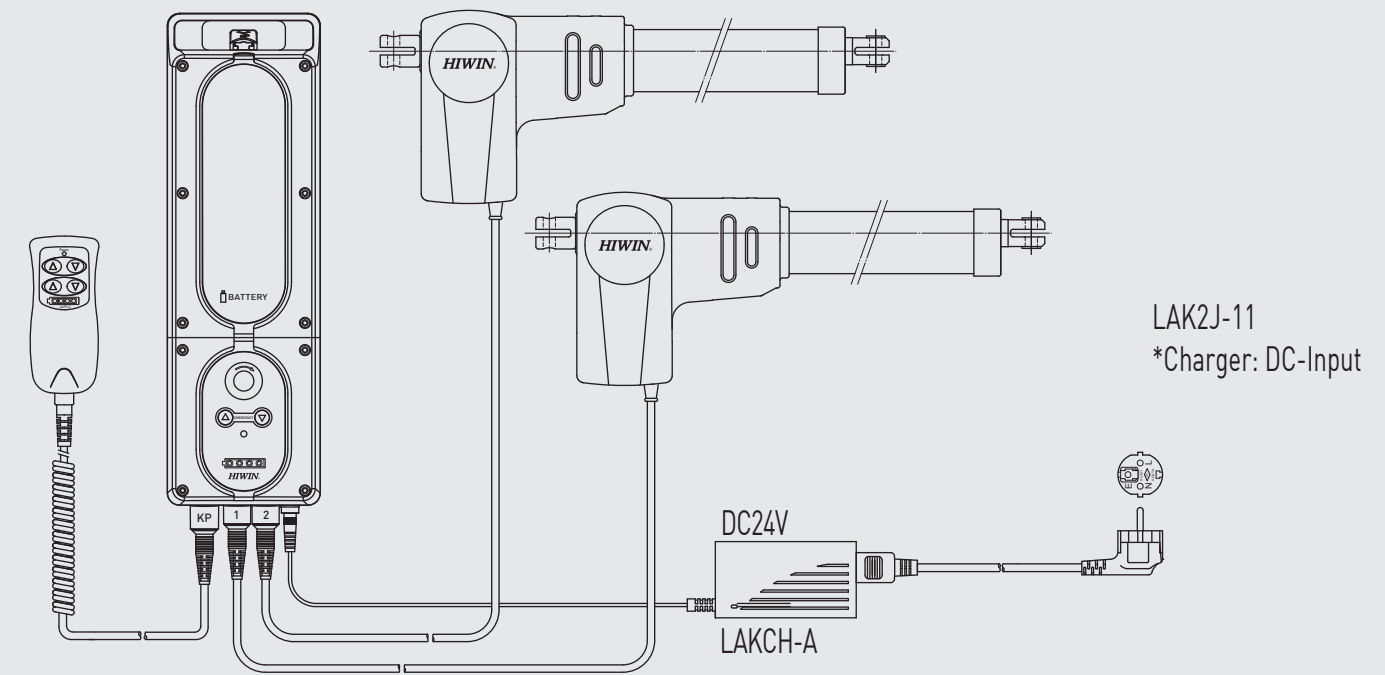
## Features of the LAK2J

- Portable design (operated by battery)
  - Control 1 to 2 Linear Actuators
  - Emergency stop button
  - Emergency operation through front panel (only for axis 1)
  - Over load protection
  - Soft - start / stop
  - Battery rechargeable via LAKCH charger
  - Automatic alarm when the battery is low
  - Automatic Energy Saving Mode
  - Battery capacity 4.5Ah (12VDC\*2)
  - LED for power indication
- \*Note: Please charge the battery for at least 12 hours before the initial use

## Battery Characteristics



\*Test results are obtained under 5A load current  
 Note: 1.The test results are obtained under duty cycle 10% (2 minutes of continuous operation followed by 18 minutes of non-operation).  
 2.The Test results are for reference only, actual value will be different due to the battery performance.



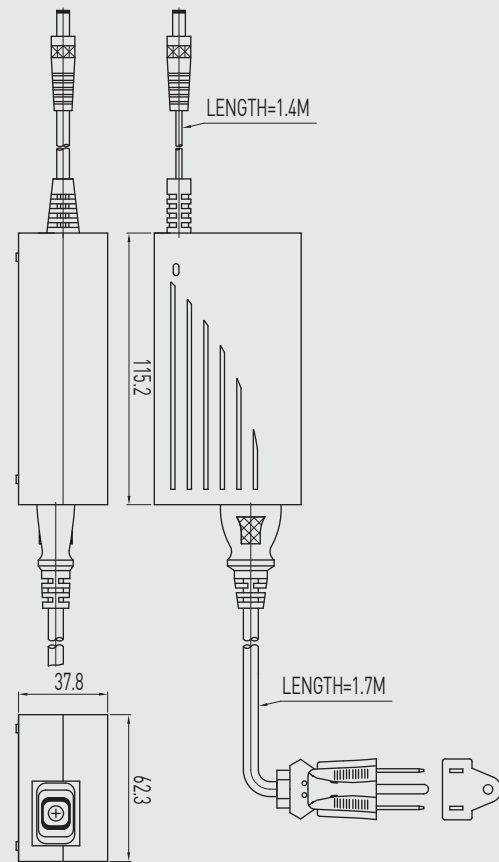
## Ordering Information

**LAK2J - 11 - HH - 01 - 24 - G E**

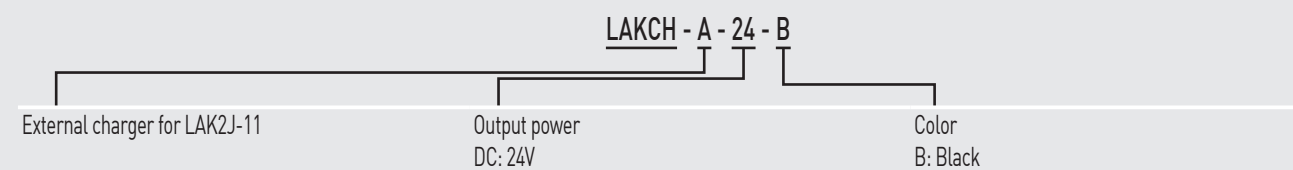
Battery	Charger	Actuator No.1~2	Software function	Output power	Color	Special models according to Client's requirement
1: 4.5Ah	1: DC in charger by LAKCH-A	0: None A-H: Over current setting value	01: Standard	DC: 24V	G: Gray	None E = Special requirement

## Charger/Battery

Charger : LAKCH-A



## Ordering Information



## Linear Actuator

### 8. 4-Axis Controller

#### 8-1. HIWIN 4-Axis Controller

LAK4D

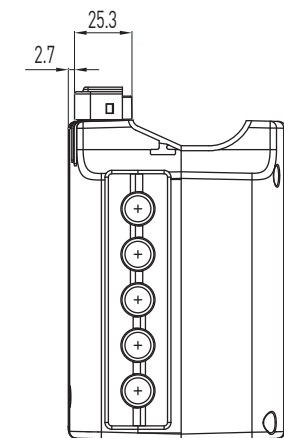
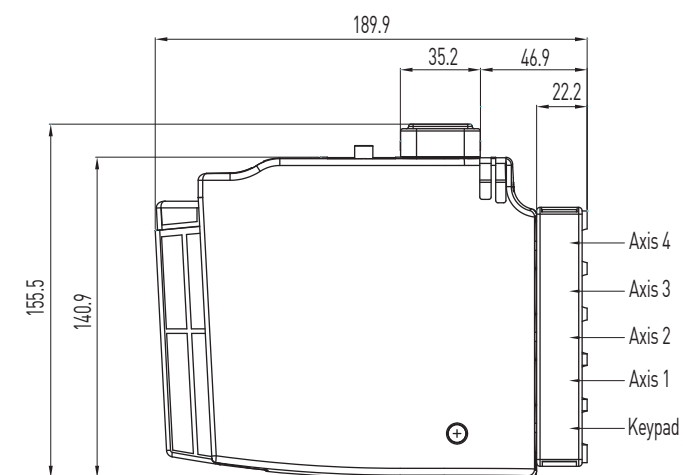
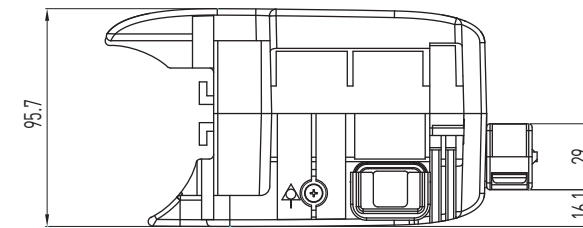


Table 8.1 Specifications

Input voltage	AC 100 / 110 / 120 / 220 / 230V (50/60Hz)
Output power	72.5VA (24VDC) max.
Duty cycle	10%
Protection	IP54
Working temp.	+5°C~40°C

#### Option:

- (1) IP66
- (2) Output power: 144VA, 216VA
- (3) UL Version

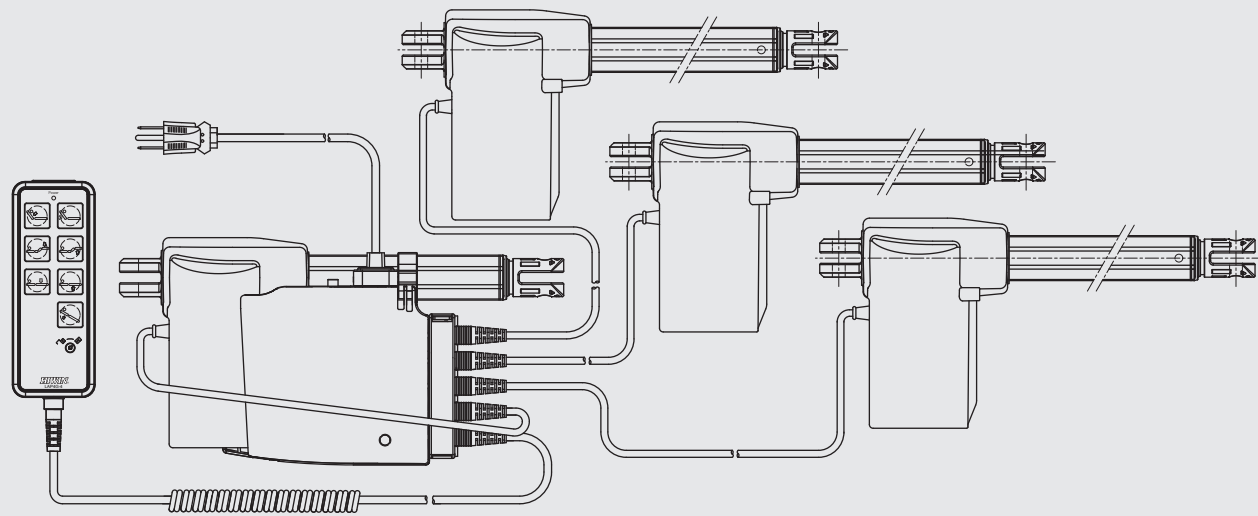
#### Features of LAK4D

- Control 1 to 4 Linear Actuator
- Standard cable length: 4M
- Detachable cable retainer (protection against accidental unplugging)
- Removable AC power cable.

- LED power display.
- Can be mounted directly on the LAN5.  
(LAN5 min. RL must be greater than 300mm)
- \* Notes: LAK4D without over current protection.



LAK4D can be mounted with LAN5



### Ordering Information

LAK4D - D000 - 110 - G E			
Actuator No.1~4 0: None	Input Voltage 100: AC100V; 110: AC110V	Color B: Black	Special models according to Client's requirement None
A-H: Only indicate the actuator maximum current, not indicate over current setting value.	220: AC220V; 230: AC230V 120: AC 120V	G: Gray	E = Special requirement

## Linear Actuator

### 9. 6-Axis Controller

#### 9-1. HIWIN 6-Axis Controller

LAK6B

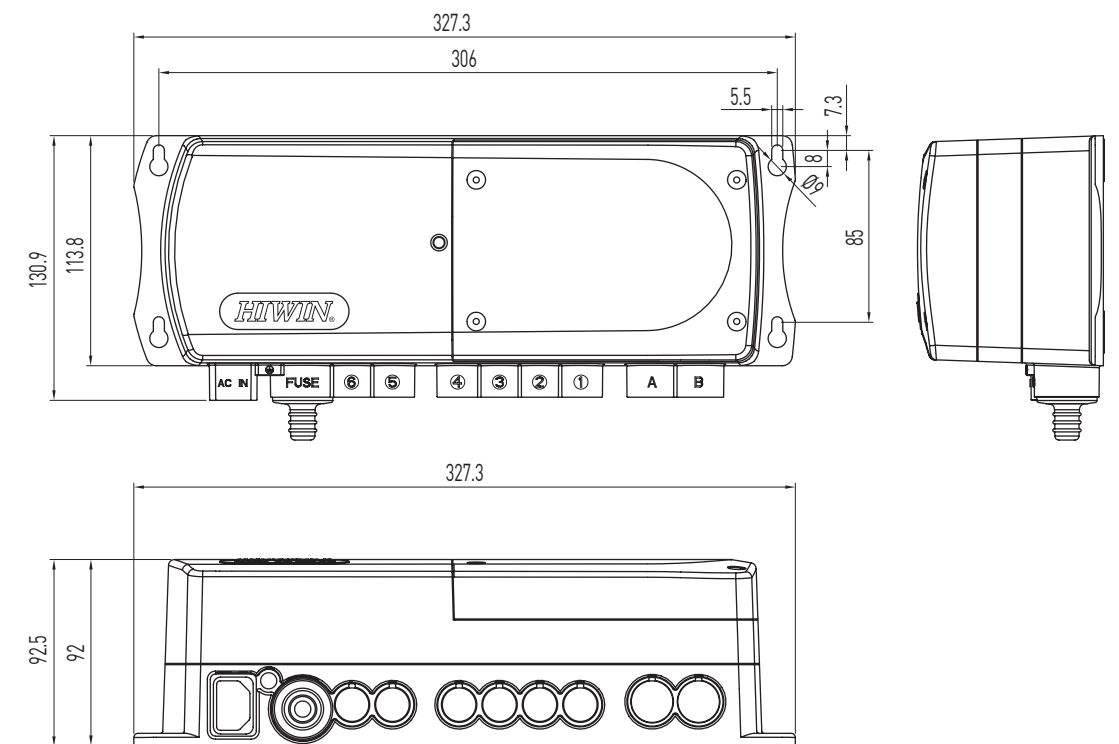


Table 9.1 Specifications

Input voltage	AC 100 / 110 / 220 / 230V (50/60Hz)
Output power	216VA (24VDC) max.
Duty cycle	10%
Protection	IP54
Working temp.	+5°C~40°C

#### Option:

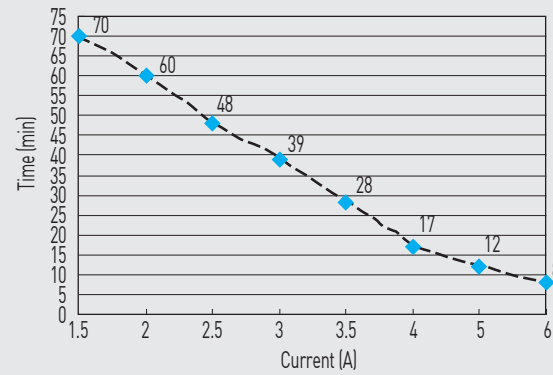
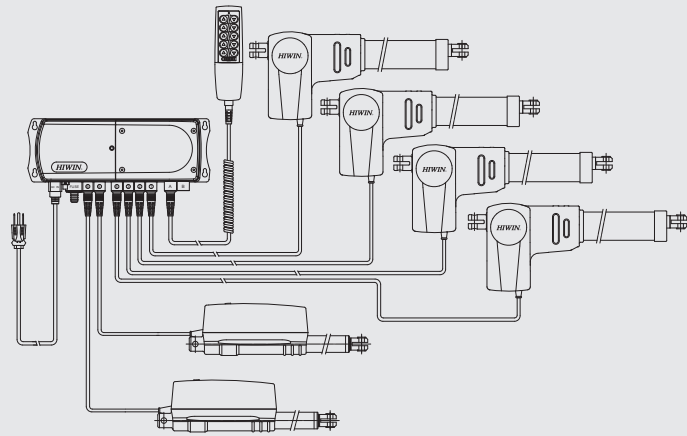
- (1) IP66
- (2) Custom program

## Features of LAK6B

- Control 1 to 6 Linear Actuators
- Over load protection
- Soft-start
- Standard cable length: 4M
- Rechargeable battery
- Low battery indicator (alarm)
- Automatic energy saving
- Battery capacity 1.3Ah (12VDCx2)
- Main fuse replaceable by external plug
- Spare fuse inside the fuse plug
- External ground connection
- LED power indication

\* Note: Simultaneous movement is not available for LAN3A/-2/-3(24Q)

\* Note: Please charge battery for at least 8 hours before initial use.



Note: 1. The test results are obtained under duty cycle 10% (2 minutes of continuous operation followed by 18 minutes of non-operation).  
2. The Test results are for reference only, actual value will be different due to the battery performance.

## Ordering Information

**LAK6B - 1 - D 00000 - 00 - 110 - G E**

Battery	Actuator No.1~6	Type	Input Voltage	Color	Special models according to Client's requirement
0: No	0: None	00: Standard	100: AC100V; 110: AC110V	B: Black	None
1: 1.3Ah	A~J: Over current setting value	01: Custom software	220: AC220V; 230: AC230V	G: Gray	E = Special requirement

\* Check attached table for over current setting...see page 55.

## Over Current Setting Table

Code No.	Current setting	Actuator Model	Controller Model
A	2.5A	LAS4-1; LAS5-1/-2	LAK2; LAK2D; LAK2LR; LAK2BN; LAK2J; LAK4D; LAK6B
B	3.0A	LAS1-1; LAS3-1	LAK2; LAK2D; LAK2LR; LAK2BN; LAK2J; LAK4D; LAK6B
C	4.0A	LAS1-2; LAS3-2; LAS4-2; LAM2-3; LAS2-1	LAK2; LAK2LR; LAK2D; LAK2BN; LAK6B; LAK2J; LAK4D
D	5.0A	LAM3-4; LAN5-2/-3/-4; LAM2-1/-2	LAK2; LAK2D; LAK2LR; LAK2BN; LAK2J; LAK4D; LAK6B
E(24V)	6.0A	LAM3-2; LAN4; LAN4-3/-4; LAN5-1; LAC1	LAK2D; LAK2BN; LAK2J; LAK4D; LAK6B
E(12V)	6.0A	LAS1-1(12V); LAS3-1(12V); LAS4-1(12V); LAM2-3; LAS2-1	LAK2(DC)
F(24V)	7.0A	LAM3-1; LAN4-1/-2; LAN5-3/-4(24Q)	LAK2; LAK2D; LAK2LR; LAK2BN; LAK2J; LAK4D; LAK6B
F(12V)	7.0A	LAS1-2(12V); LAS3-2(12V); LAS4-2(12V); LAM2-3	LAK2(DC)
G(24V)	8.0A	LAM1-1/-2/-1A; LAN5-1/-2(24Q)	LAK2; LAK2LR; LAK6B; LAK2J
G(12V)	8.0A	LAM1-1/-2	LAK2(DC)
H(24V)	9.0A	LAN3A-1/-2/-3/-4(24V)	LAK6B; LAK2J
H(12V)	9.0A	LAM2-1/-2	LAK2(DC)
I	10A	For reservation	
J	12A	LAN3A-1/-2/-3/-4(24Q)	LAK6B; LAK2J
K	14A	For reservation	
L	15A	LAN1-1/-2/-3(12V); LAM1-1/-2/-1A(12V); LAM3(12V); LAN4(12V)	LAK2(DC)
Z	**A	Special current value (special requirement)	

## LA Cable Connector Vs. Controller Model

Actuator Model	Normal connector	Controller Model	
		LAK2 / LAK2J / LAK2LR	LAK2BN / LAK2D / LAK4D / LAK6B
LAM1	bare wire		
LAM2	bare wire		
LAM3	bare wire		
LAS1	bare wire		
LAS2	bare wire		
LAS3	bare wire		
LAS4	bare wire		
LAN1	bare wire		
LAN3A	bare wire		
LAN4	bare wire		
LAN5	bare wire		
LAC1	bare wire		

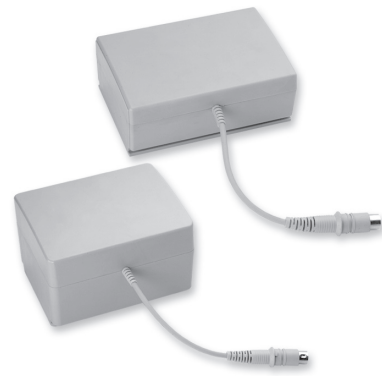


# Linear Actuator

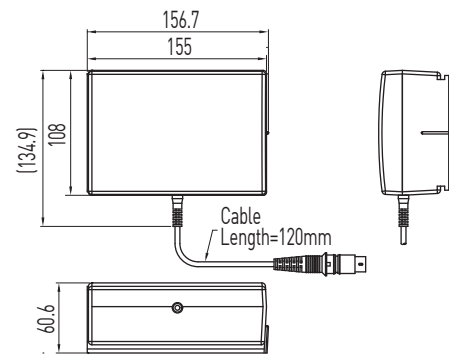
## 10. Battery

### 10-1. HIWIN Battery

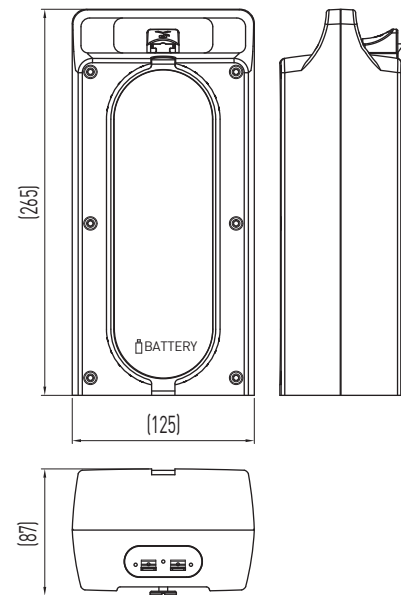
#### LAKB



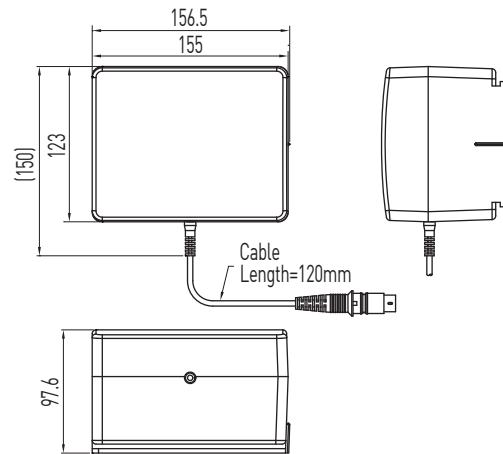
Battery: LAKB-1



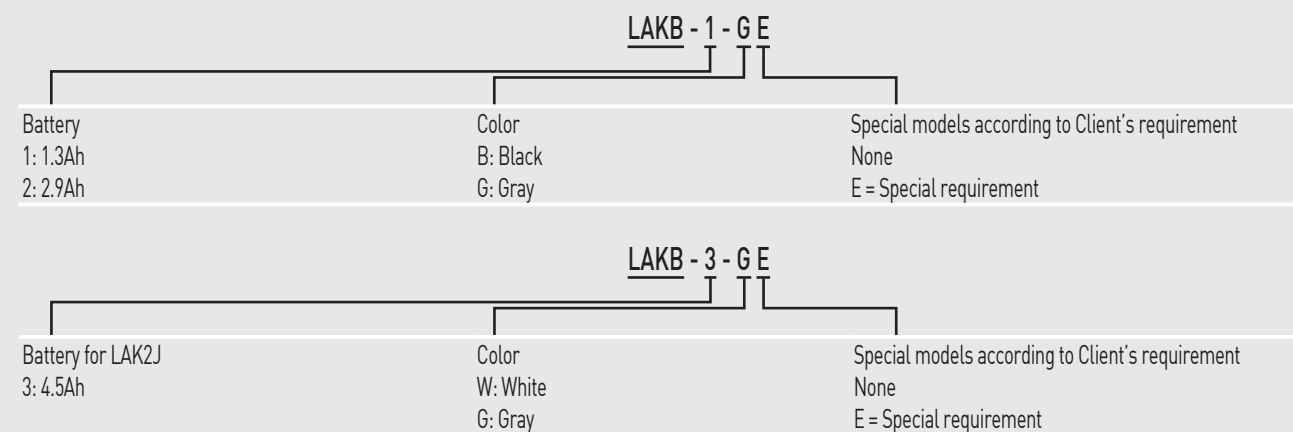
Battery: LAKB-3



Battery: LAKB-2



## Ordering Information



# Linear Actuator

## 11. Over Current Protection Box

### 11-1. HIWIN Over Current Protection Box

#### LAKC1-1

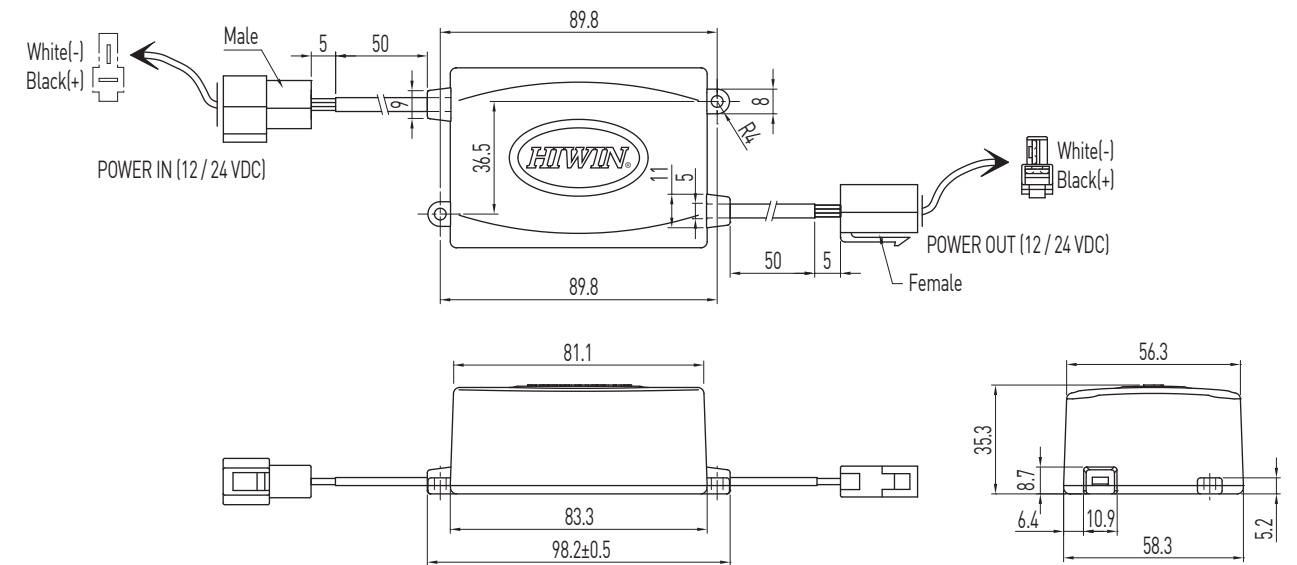


Table 11.1 Specifications

Input voltage	12/24VDC
Output power	12/24VDC
Duty cycle	10%
Protection	IP54
Working temp.	+5°C~40°C

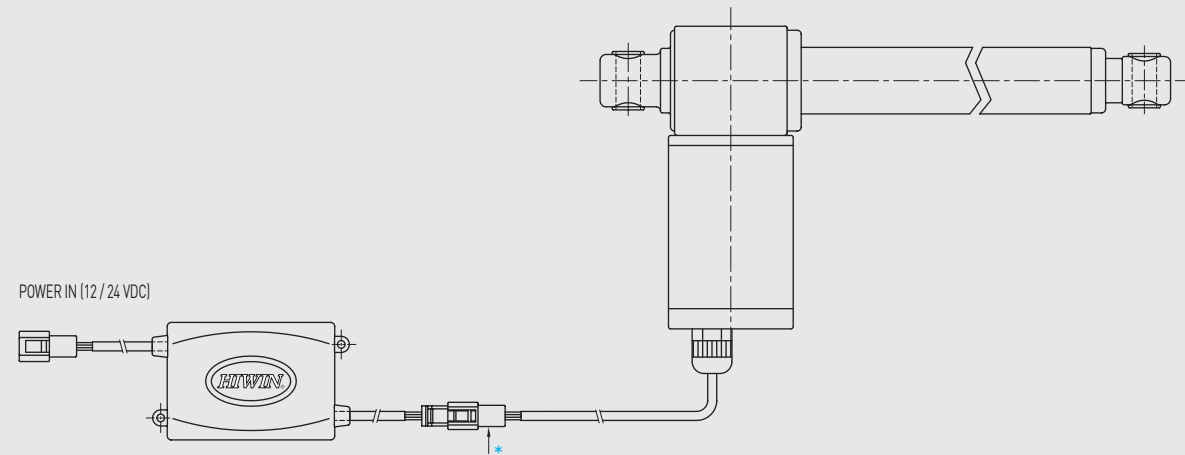
### Option:

(1) IP66

### Features of LAKC1-1

- Compact size
- Low cost
- Easy to use
- Multiple over-current settings available
- Fast response time

## For Series



\* When purchasing an actuator to be connected with the LAKC1, please inform the Hiwin sales representative.

## Ordering Information

Model number	Input (Output) Voltage	Over Current Setting	Color	Special models according to Client's requirement
	12: 12VDC 24: 24VDC	12V: 2: 2A 3: 3A 4: 4A 5: 5A 6: 6A 8: 8A 10: 10A 12: 12A 18: 18A	24V: 2: 2A 2.5: 2.5A 3: 3A 4: 4A 5: 5A 6: 6A 7: 7A 8: 8A 9: 9A 10: 10A	B: Black G: Gray E=Ignore this part of the serial number if not available

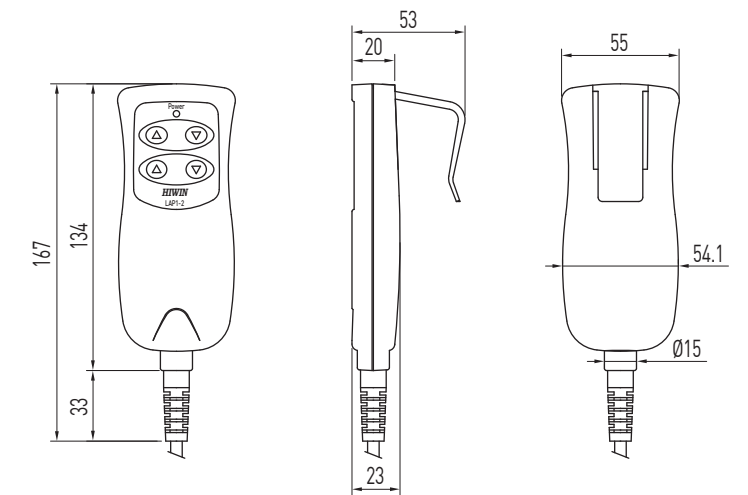
**LAKC1 - 1 - 12 - 6 G E**

## Linear Actuator

### 12. Keypad Series

#### 12-1. HIWIN Keypad Series

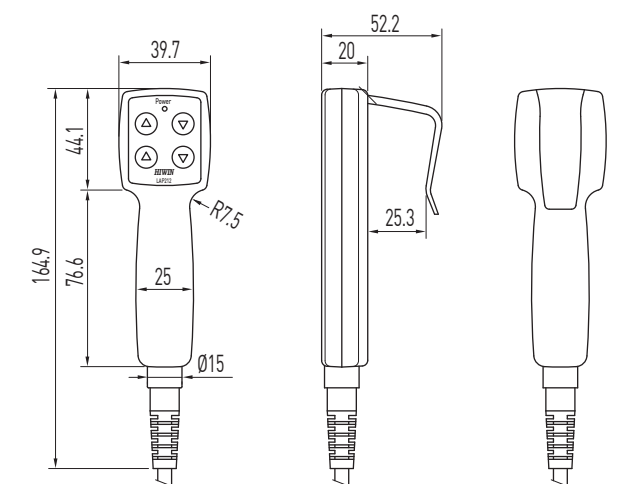
##### LAP1



#### Features of the LAP1

- Controls a maximum of 2 Actuators
- Compatible with the LAK2, LAK4D, LAK2LR, LAK2D, & the LAK6B
- Ergonomic design
- Standard cable length: coil 600mm; total 1100mm
- Protection: IP66

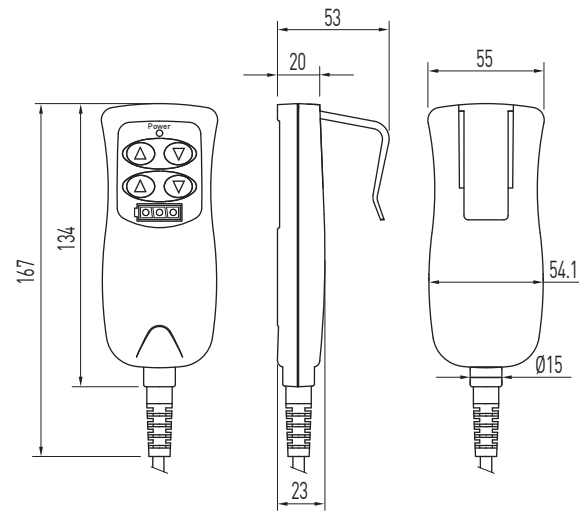
##### LAP2



#### Features of the LAP2

- Control maximum of 2 Actuators
- Compatible with LAK2, LAK2D
- Ergonomic design and small size
- Standard cable length: coil 600mm; total 1100mm
- Protection: IP66

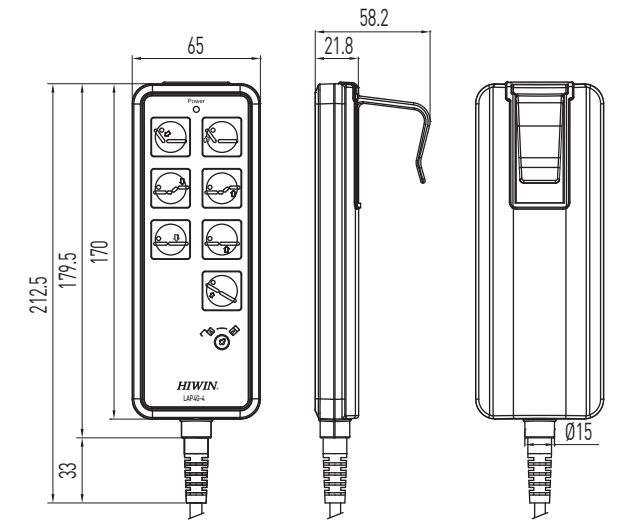
### LAP3



#### Features of the LAP3

- Control maximum of 2 Actuators
- Compatible with LAK2J
- Ergonomic design
- Standard cable length: coil 600mm; total 1100mm
- LED for battery capacity
- Protection: IP66
- UL only for LAP3-1-B

### LAP4G



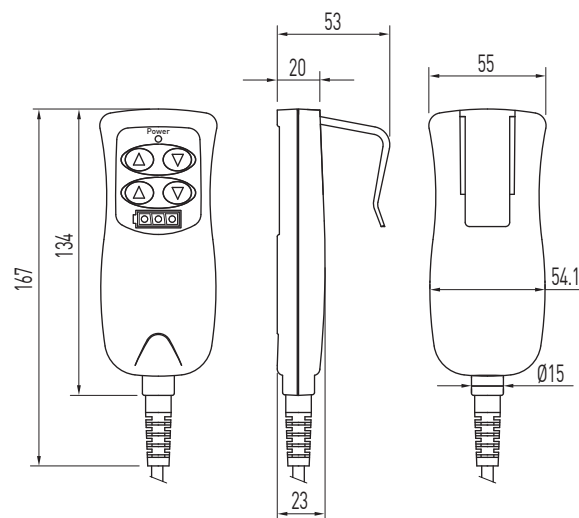
#### Features of the LAP4G

- Control maximum of 6 Actuators
- Compatible with LAK4D, LAK6B
- Ergonomic design
- Standard cable length: coil 600mm; total 1100mm
- Protection: IP66
- With lock function

#### Option:

- (1) UL version
- (2) Cable length: coil 600mm; total 2250mm

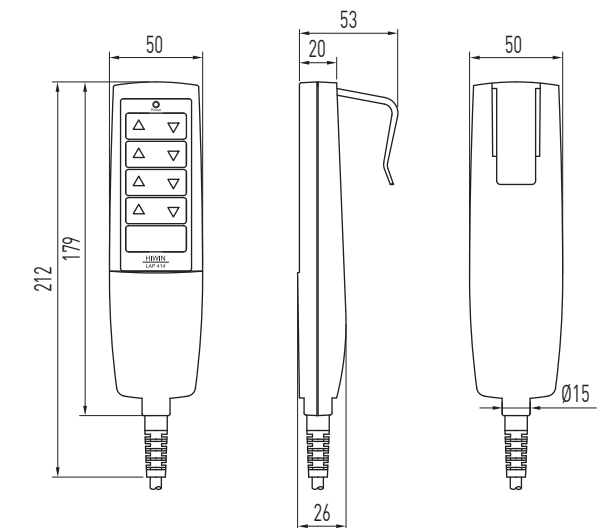
### LAP3N



#### Features of the LAP3N

- Control maximum of 2 Actuators
- Compatible with LAK2BN
- Ergonomic design
- Standard cable length: coil 600mm; total 1100mm
- LED for battery capacity
- Protection: IP66
- \*Option: Cable length: coil 600mm; total 2250mm

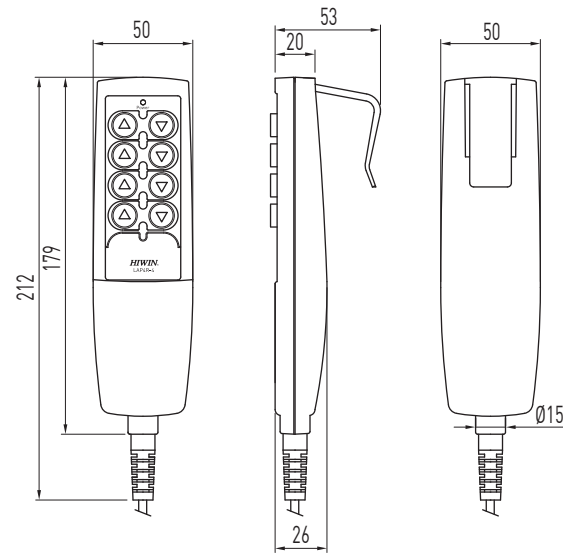
### LAP4N



#### Features of the LAP4N

- Control maximum of 4 Actuators
- Compatible with LAK4D, LAK6B
- Ergonomic design
- Standard cable length: coil 600mm; total 1100mm
- Protection: IP66
- \* Option: Cable length: Coil 600mm; total 2250mm

## LAP4R

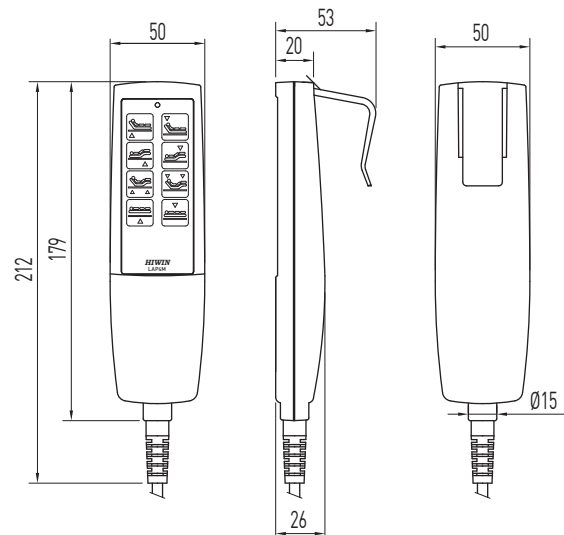


### Features of the LAP4R

- Control maximum of 4 Actuators
- Compatible with LAK4D, LAK2J, LAK6B
- Ergonomic design

- Standard cable length: coil 600mm; total 1100mm
- Protection: IP66
- \* Option: Cable length: coil 600mm; total 2250mm

## LAP4M



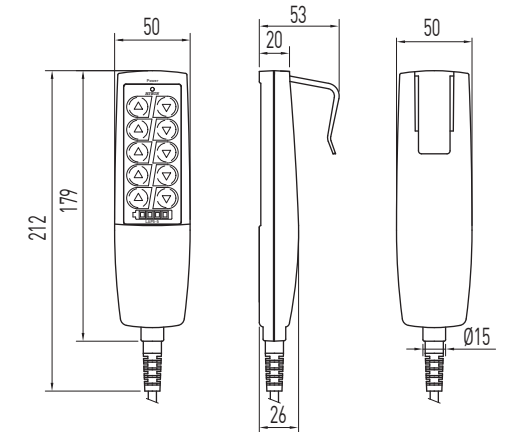
### Features of the LAP4M

- Control maximum of 4 Actuators
- Compatible with LAK4D

- Ergonomic design
- Standard cable length: coil 600mm; total 1100mm

- Protection: IP66
- \* Option: Cable length: coil 600mm; total 2250mm

## LAP5



### Features of the LAP5

- Control maximum of 5 Actuators
- Compatible with LAK6B, LAK2J

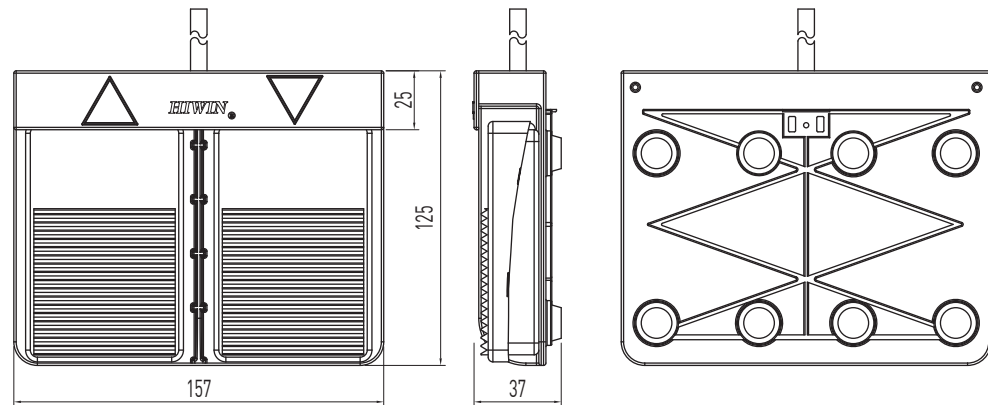
- Ergonomic design
- Standard cable length: coil 600mm; total 1100mm

- Protection: IP66

### Ordering Information

LAP1 - 2 - B E						Number of axis controlled	Color B: Black G: Gray	Special models according to Client's requirement None E=Ignore this part of the serial number if not available
Model number	LAP1	LAP2	LAP3	LAP3N	LAP4N			
LAP4M	LAP4R	LAP5			LAP4G			

## LAFS1



### Features of the LAFS1

- Controls 1 Actuator
- Compatible with all controllers
- \* Notice the type of controller

- Easily portable with attached magnet
- Standard cable length: coil 600mm; total 1100mm

### Ordering Information

LAFS1 - 1 - G E			
Model number LAFS1	Number of axis controlled 1	Color G: Gray	Special models according to Client's requirement None E = Ignore this part of the serial number if not available

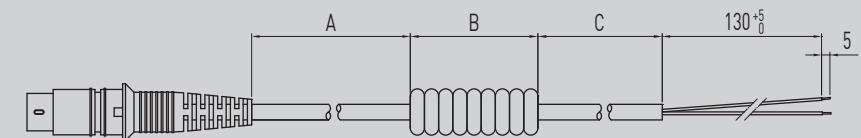
## Linear Actuator

### 13.Options for each type

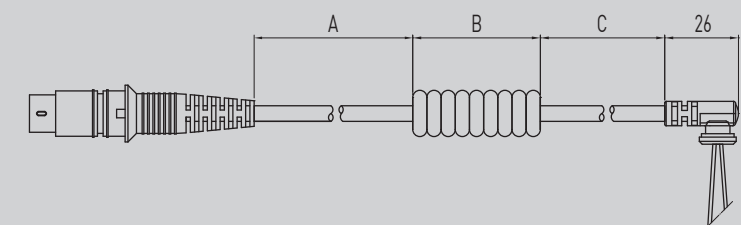
#### 13-1. Standard Cable length of the actuator

Item	Type	Standard cable length (Straight line)			Cable diagram
		Normal length (L)			
1	LAM1	1M	1.5M	2M	 (Bare Wire-Standard)
2	LAM2				
3	LAM3				
4	LAS1				 (DIN 4 PIN Connector)
5	LAS2				
6	LAS3				
7	LAS4				
8	LAN1				
9	LAN3A				
10	LAN4				 (Audio Connector)
11	LAN5				
12	LAC1				
13	LAN5 Coil				

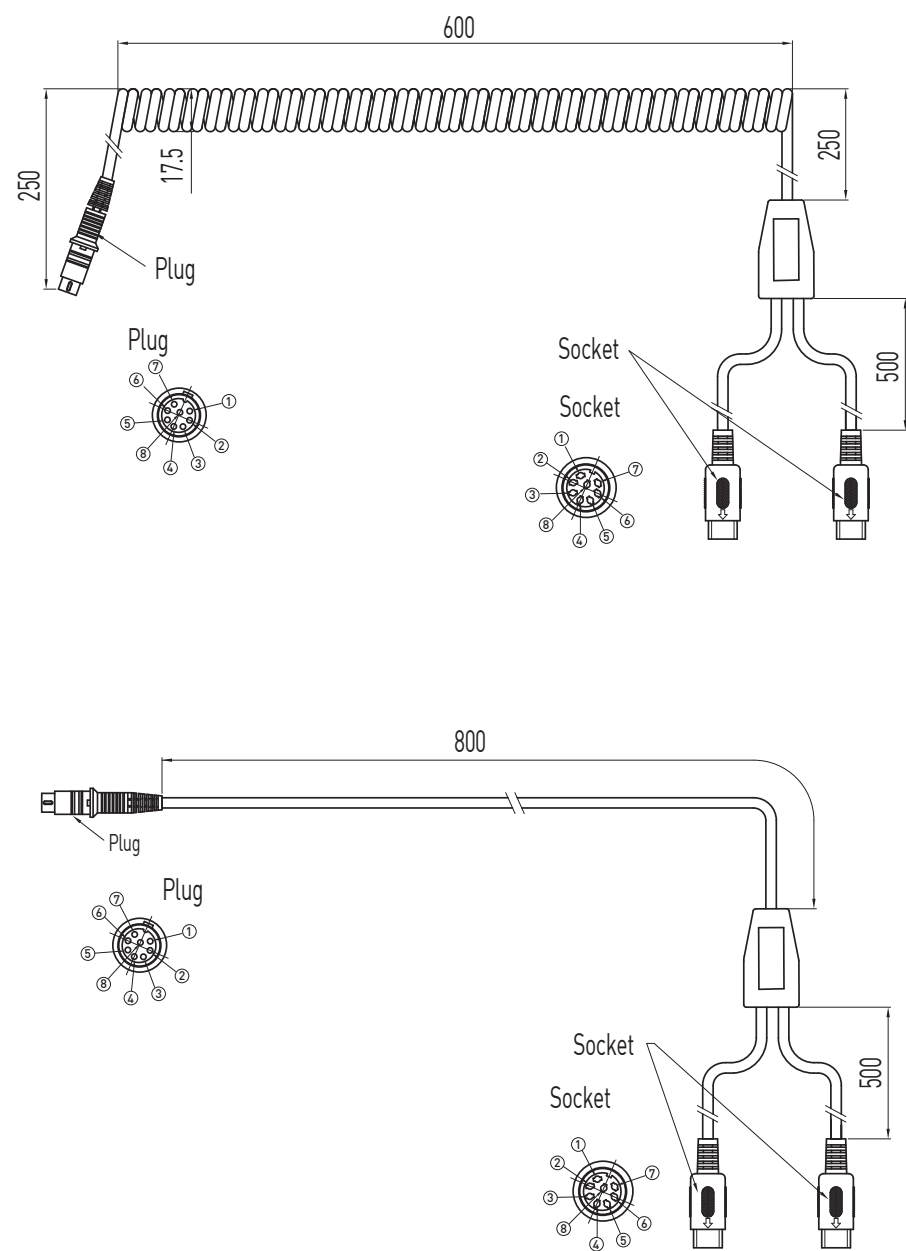
DIN 4PIN - Coil	Species	1	2	3	4
Length A		300	300	100	1350
Length B		300	400	600	400
Length C		130	330	130	110



DIN 4PIN - Coil (90° Connector)	Species	1			
Length A		300			
Length B		300			
Length C		100			



## Y-CABLE



### Features of the Y-Cable

- Compatible with 2 keypads independent input.

### Ordering Information

LAPY - 1 - G E			
Model of Y extension cable	Cable	Color	Special models according to Client's requirement
	1: Coil cable	B: Black	None
	2: Straight cable	G: Gray	E = Ignore this part of the serial number if not available

## 13-2. HIWIN Options for each Actuator Type

Series	Function	IP54	IP65	IP66	Back fixture turn 90°	Rod end with flat connector	Safety nut	Spline (push only)	Quick release	Internal limit switches	External limit switches	Hall Sensor			Potentiometer	MR Sensor NPN
												NPN	PNP	TTL		
LAM1	LAM1-1	●	▲		▲						▲					
LAM1	LAM1-2	●	▲		▲						▲					
LAM1	LAM1-1A	●	▲		▲						▲					
LAM2	LAM2-1	●		▲	▲	●		▲		●	▲					▲
LAM2	LAM2-2	●		▲	▲	●		▲		●	▲					▲
LAM2	LAM2-3	●		▲	▲	●		▲		●	▲					▲
LAM3	LAM3-1	●		▲	▲			▲		●						
LAM3	LAM3-2	●		▲	▲			▲		●						
LAM3	LAM3-4	●		▲	▲			▲		●						
LAS1	LAS1-1	●		▲	▲	▲				●	▲					
LAS1	LAS1-2	●		▲	▲	▲				●	▲					
LAS2	LAS2-1	●		▲	▲	▲				●	▲	■	■	■	■	
LAS3	LAS3-1	●		▲	▲	▲				●	▲	■	■	■	■	
LAS3	LAS3-2	●		▲	▲	▲				●	▲	■	■	■	■	
LAS4	LAS4-1	●	▲							●		▲		▲		
LAS4	LAS4-2	●	▲							●		▲		▲		
LAN1	LAN1-1	●		▲	▲			▲	▲	▲	●		▲		▲	
LAN1	LAN1-2	●		▲	▲			▲	▲	▲	●		▲		▲	
LAN1	LAN1-3	●		▲	▲			▲	▲	▲	●		▲		▲	
LAN3A	LAN3A-1	●		▲	▲			▲	▲	▲	●	▲			▲	▲
LAN3A	LAN3A-2	●		▲	▲			▲	▲	▲	●	▲			▲	▲
LAN3A	LAN3A-3	●		▲	▲			▲	▲	▲	●	▲			▲	▲
LAN3A	LAN3A-4	●		▲	▲			▲	▲	▲	●	▲			▲	▲
LAN4	LAN4-1	●		▲				▲	▲							
LAN4	LAN4-2	●		▲				▲	▲							
LAN4	LAN4-3	●		▲				▲	▲							
LAN4	LAN4-4	●		▲				▲	▲							
LAN5	LAN5-1	●	◆	■	▲			▲	▲	▲	●		▲		▲	
LAN5	LAN5-2	●	◆	■	▲			▲	▲	▲	●		▲		▲	
LAN5	LAN5-3	●	◆	■	▲			▲	▲	▲	●		▲		▲	
LAN5	LAN5-4	●	◆	■	▲			▲	▲	▲	●		▲		▲	
LAC1	LAC1-1	●								●		■		■	■	

● Standard  
 ▲ Option is available.  
 ◆ ■ Only 1 option is available.