

**A**

**OPERATION**

**P**

**GUIDE** *H series*

**O**

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**T**

**E**

*Industrial*

**M**

*Radio Remote Controller*

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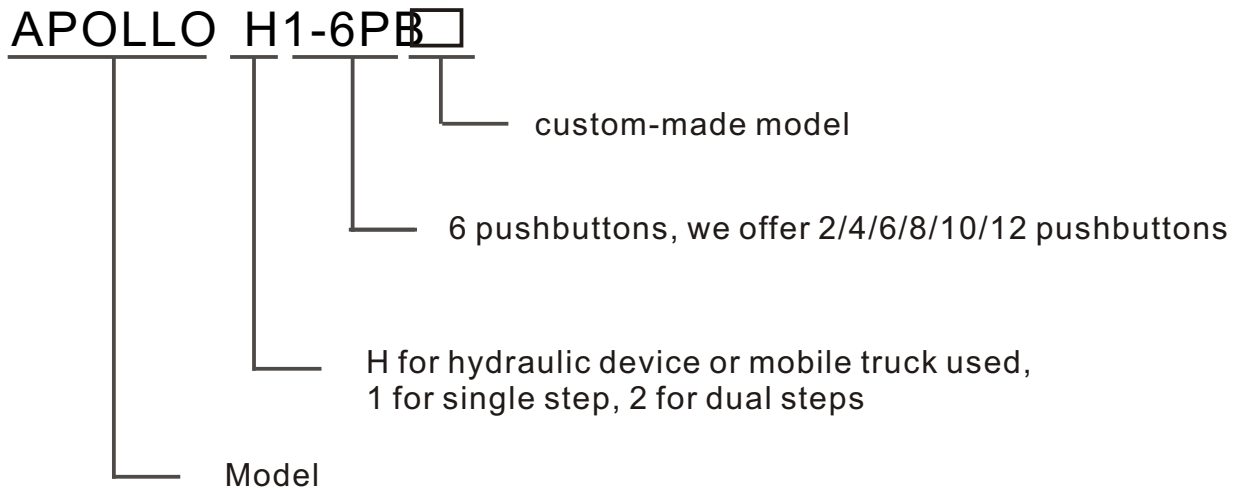
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**Note:** The device complies with part 15 of FCC Rules. Operation is subject to the following two conditions:  
 (1) This device may not cause harmful interference, and  
 (2) This device must not accept any interference received, including interference that may cause undesired operation.  
 The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by 3e may void the user's authority to operate the equipment.

To comply with FCC RF exposure requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

## INTRODUCTION

To satisfy various requests in remote controller, we are now finally researched a high quality, industrial grade remote controller --- APOLLO system. Provided from 4 to 12 push buttons as standard models, also provided up to 18 push buttons on demand, further on you can decide if taking with reserved functions or not, and really feel the convenience!

APOLLO system, a reliable, durable remote controller, which can be instead of the original wired control when the environment is too dangerous, something as electroplate field, steel factory, or the field with high temperature. Of course, it can also raise the producing efficiency!

Except the dust / water / oil proof casing, APOLLO can even resist strong shock, or the extreme weather. Our professionalism surpass the original design, improved possible faults, the section assembled push button parts save lots of pennies from unnecessary spend, which can also easily up-grade to different models.

Your equipment does not have to adapt the remote controller, but it can really become an accessory! Once the transmitter housing has to be renewed, you can just exchange the damaged section, but not the whole one. Only the reasonable spend can be accepted, in this point, we have considered thoroughly in APOLLO system.

Take instant fix holder, APOLLO receiver makes installation steps much faster and easier. The internal diagram / components scheme are hundred percent precision but not complex, easy to understand and repair, specially save time in periodic maintenance. Components have been placed into a tough control box, protection ups to IP65, contains dust / water / oil and ultraviolet, light weight, easy carry on, save energy and time in device

## MODELS OPTION

Model No	description
<b>ONE STEP</b>	
H1-2PB	2 pushbuttons, w/ EMS stop button
H1-4PB	4 pushbuttons, w/ EMS stop button
H1-6PB	6 pushbuttons, w/ EMS stop button
H1-8PB	8 pushbuttons, w/ EMS stop button
H1-10PB	10 pushbuttons, w/ EMS stop button
H1-12PB	12 pushbuttons, w/ EMS stop button
<b>TWO STEPS</b>	
H2-2PB	2 pushbuttons, w/ EMS stop button
H2-4PB	4 pushbuttons, w/ EMS stop button
H2-6PB	6 pushbuttons, w/ EMS stop button
H2-8PB	8 pushbuttons, w/ EMS stop button
H2-10PB	10 pushbuttons, w/ EMS stop button
H2-12PB	12 pushbuttons, w/ EMS stop button

Two steps can be applied as speeding up for heavy load

**TRANSMITTER**

**SPECIFICATION :**

**Frequency range:** 433 MHz ( 20 channels )  
868 MHz ( 20 channels )

**Channel spacing:** 60KHz

**Transmitting power:** < 10mW ( 10dBm )

**Antenna:** Internal type, impedance as 50Ω

**Security codes:** 256 sets

**Operation temperature:** 0°C ~ +70°C

**Enclosure:** IP65

**Source voltage:**

4xAA ( 1.5V )alkaline batteries  
or nickel rechargeable batteries

**Consumption:** < 7mA

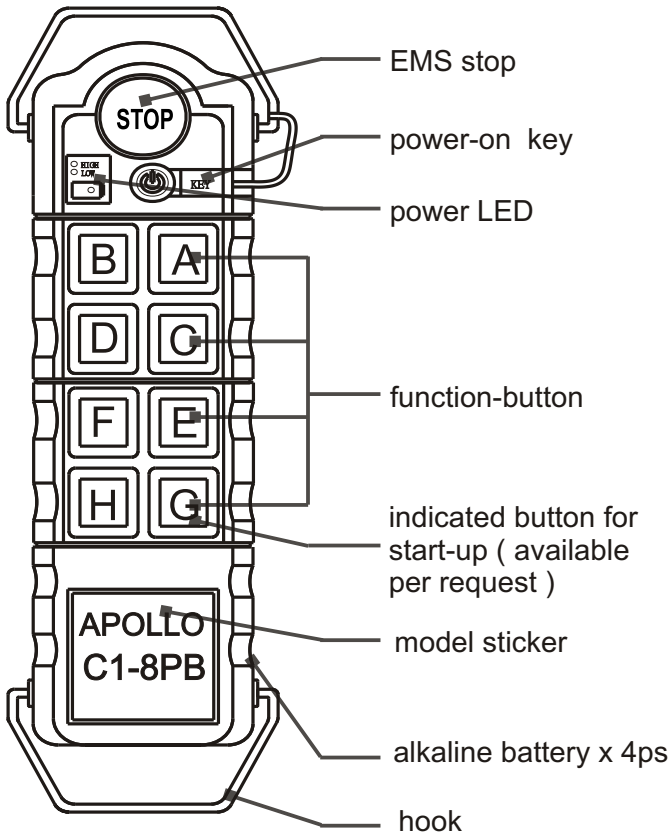
**Size:** 217x70x49 mm (H1-6PB )

**Weight:** 515g (H1-6PB )



( fig. 1 )

**OPERATION STEPS:**



( fig. 2 )

**HOW TO START UP THE APOLLO UNIT:**

1. Power on receiver.
2. Insert the transmitter power-on key, turn on the mushroom .
3. Press any button and release to start-up receiver.





**APOLLO SYSTEM-SPECIAL PUSHBUTTON TO START UP IF REQUESTED, STEPS AS FOLLOWS:**

1. Power on receiver.
2. Insert the transmitter power-on key, turn on the mushroom .
3. Model with/ up 6 pushbuttons, simply press the right bottom button and release to start up the unit.



## STATUS INDICATOR:


APOLLO receiver has a 4-LED indicator to show various status illustrated as below and to provide a simple judgement for operation & after -service.

lillustration	description
	<u>Power LED</u> Green when power on
	<u>Operation LED</u> GREEN when start-up. Light OFF when EMS stop pressed or power off
	<u>Data LED</u> OFF when TX is pressed ( in operation ). RED when button released RED LED blinking slowly when data not corresponded on TX & RX pr or interference RED LED blinking fast when ID codes unmatch
	<u>Frequency LED</u> RED when TX pressed ( in operation ) Light OFF when button released. RED LED blinking irregularly when interference incurred

Please **NOTE** that the DATA will **NOT** be lighted ( off ) when using its own transmitter , it means the transmitted signal has been received by receiver and decoded correctly.

## FUNCTION-LED INDICATOR:

APOLLO receiver also has an 8 function-LED to indicate the corresponded MOSFET is ON when button A/B/C/D/E/F/G/H is pressed.

lillustration	description
	<u>Function LED</u> RED lighted when button A, C, E & G is pressed OFF when button released.  GREEN lighted when button B,D,F & H is pressed, OFF when button released

**INSTALLATION STEPS:****NECESSARY TOOLS:**

It would be very easy to install APOLLO receiver, the necessary **tools** are as following:

Long nose pliers   diagonal cutting pliers   cross head screwdriver  
Hexagonal head wrench   multimeter   Electric drill   Cable and feeder

**STEPS:**

Fix the wired pendant in safe position.

1. Ensure the original wired control of crane is correct.
2. Ensure shut down the main power source of crane before installation.
3. Mount in a firmed site where the receiver can be seen easily by operator.
4. Keep away the mounted site from motors, relays, cables, high voltage wiring and devices, or the protrusion of building where crane moves. Select a firmed site without metal shielding around.
5. Do not install the other same channel remote controller within 50 meters.
6. Ensure the wiring layout correctly and safely.
7. Test each motion / function after installation, ensure transmitter output have the same motion as the original wired control.



( a ) Ensure the output contact as Main / A / B/ will not exceed 5A ( see Wiring diagram after page 18 ).

**( b ) Please make sure to mount the receiver where it is easily reached the EMS stop according to EC machinery directive.**

**( c ) Please check the EMS stop on receiver at least every week to keep the good condition and for longer life.**

( d ) Please double check the wiring diagram after receiver's installation, then turn the power on.

Mounted receiver in a firmed site where the EMS stop can be reached easily

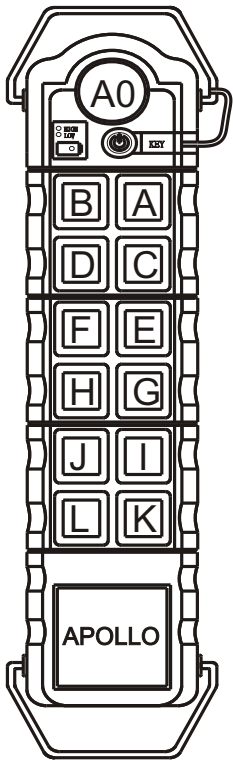


( fig. 4 ) ( example for fix / install receiver )





## FUNCTION TABLE:



button	function	interlock	button	NON-interlock	A/B on/off	A/B/C/D on/off		main relay link ( ID )
A0	EMS STOP*							
A	normal*	YES*	toggle	NO*	NO	NO		YES
B	normal*		toggle					YES
C	normal*	YES*	toggle	NO*	NO	NO		YES
D	normal*		toggle					YES
E	normal*	YES*	toggle	NO*	NO	NO		YES
F	normal*		toggle					YES
G	normal*	YES*	toggle	NO*	YES	YES	NO	YES
H	normal*		toggle					YES
I	normal*	YES*	toggle	NO*	YES	YES	YES	YES
J	normal*		toggle					YES
K	normal*	YES*	toggle	NO*	YES	NO	YES	YES
L	normal*		toggle					YES

( fig. 7 )

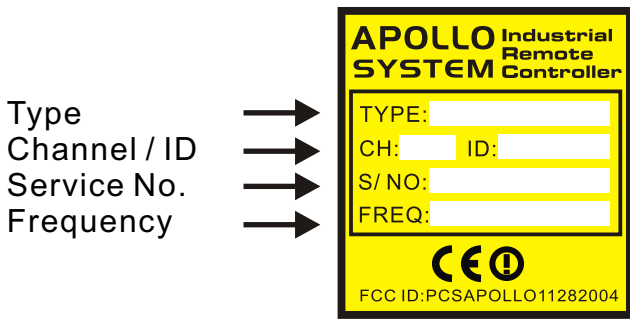
\*set-up already ex-work.

## PRECAUTION

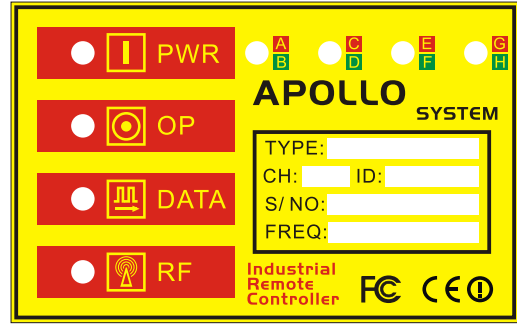
- ⚠ For safety consideration, complete training can only be offered / authorized to the operator.
- ⚠ Please read thoroughly the operation manual before using APOLLO system.
- ⚠ Regular maintenance / testing can extend the components' life, malfunction will also be found prior.
- ⚠ Before operating the transmitter please check by power-on key to ensure the battery power is sufficient. If not, please change a whole set of new batteries. For a long term period without operation we suggest you to take out of the batteries.
- ⚠ Do NOT try to change or move the internal components without authorization, please contact your supplier, or the professional engineer who has the experience in industrial remote controller for maintenance / repairs.
- ⚠ When the remote controller be struck by lightning, please stop operation and contact

## ID LABEL

Every APOLLO system has its identification PC label, which defines the **device's type, ID, service number, frequency and channel**. For any inquiry please advise your supplier the service number for a faster solution.



( fig. 8 ) transmitter ID label



receiver ID label ( fig. 9)

## SPARE PARTS LIST

TRANSMITTER		RECEIVER	
spare parts	abbreviation	spare parts	abbreviation
Top casing (incl. EMS-stop button, Power-key, stainless steel hook)	TOC	Box 1.2 receiver casing for H1-2,4,6,8,10,12PB and H2-2,4,6,8,10,12PB used (incl. nylon cable glands, EMS stop, Rubber shock-proof nut, 2pcs of Instant firm Holder )	BOX 1.2
2 push buttons casing (incl. laser printed symbol & rubber cover )	2TH	Receiver High Frequency part	RFP
4 push buttons casing (incl. laser printed symbol & rubber cover )	4TH	H1-2/4PB decoder & relay board	HDD41
Bottom casing (incl. battery case, Stainless steel hook)	BOC	H1-6PB decoder & relay board	HDD61
Transmitter high frequency part	TFP	H1-8PB decoder & relay board	HDD81
H1-4PB encoder board	ED41	H1-10PB decoder & relay board	HDD101
H1-6PB encoder board	ED61	H1-12PB decoder & relay board	HDD121
H1-8PB encoder board	ED81	H2-2/4PB decoder & relay board	HDD42
H1-10PB encoder board	ED101	H21-6PB decoder & relay board	HDD62
H1-12PB encoder board	ED121	H2-8PB decoder & relay board	HDD82
H2-2/4PB encoder board	ED42	H2-10PB decoder & relay board	HDD102
H2-6PB encoder board	ED62	H2-12PB decoder & relay board	HDD122

H2-8PB encoder board	ED82	Cable 0.75mm <sup>2</sup> x 8 ( colored wires )	CAP08
H2-10PB encoder board	ED102	Cable 0.5mm <sup>2</sup> x 16	CAP16
H2-12PB encoder board	ED122		
Nylon belt for transmitter	NB		
transmitter sleeve	TS		

## TROUBLE SHOOTING

We have come across problems that are not associated with wireless remote control unit but are crane/hoist or the device is subjected to control. Therefore it is essential that before trouble shooting, the problem is identified to be relating the wireless remote control unit.

When malfunction occurs, please check APOLLO system per the following stating or the brief trouble shooting chart step by step, or contact your supplier if device still can not be operated normally.

**IF: Press any push button in transmitter but there has no output, the indicator does not show....**

*Possibility: Check if the power-key has been inserted.*

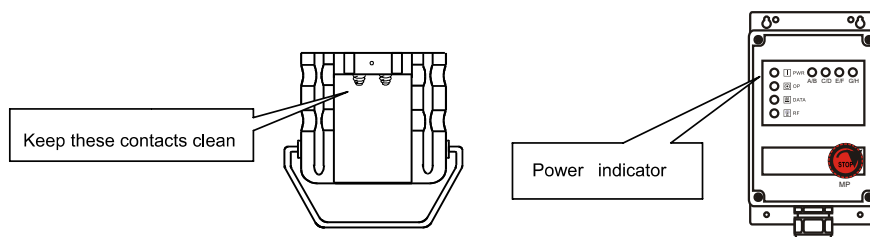
**IF: The power-key has been inserted, but still has no output, the indicator also does not show...**

*Possibility: Check if the EMS-stop push button has been pressed, if so, turn to " on " Under the normal operation, EMS-stop push button shall **not** be pressed down.*

**IF: The EMS-stop push button has been turned to " On " , the power-key is inserted, but still has no output, the indicator does not show either...**

*Possibility: Check if batteries have been inserted, or the power is sufficient. Renew a whole set of batteries and place with correct poles directions, and keep these contacts clean. ( See Fig 10 )*

*Press push button and see if green indicator is responded to blink as 1 time per sec. If no, contact your supplier immediately.*



( fig. 10 )

( fig. 11 )

**IF: Power on the receiver, but power indicator ( see fig. 11 ) does not light...**

*Possibility: Power has not been sent to receiver. Check if F1\* fuse is burn and renew a 0.5A fuse.*

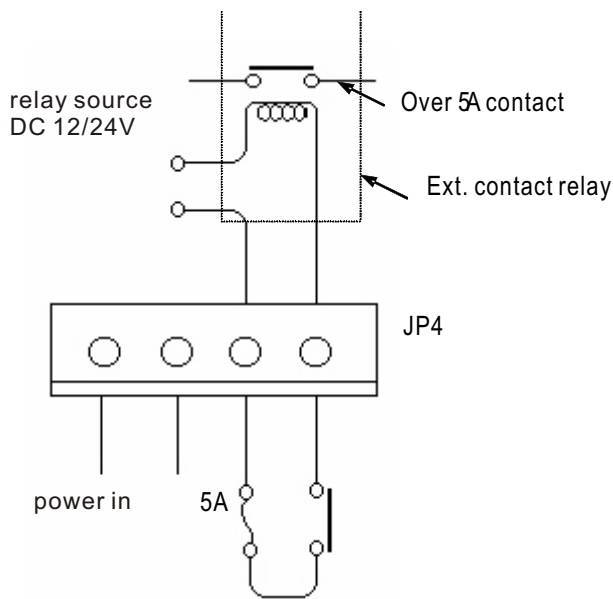
**IF: Replaced a new 0.5A fuse, but still be burn after power on...**

*Possibility: Receiver's internal circuit has some problems. Please contact your supplier.*

**IF: F2\* fuse has not been burn...**

*Possibility: The power input has some problems. Check if the input voltage is correct, if the input voltage has no problem, find out the reason of abnormal voltage, or contact your supplier.*

**IF: The indicator of output Main contact has light, but its relay has no output... Possibility:**  
The fuse of Main contact, F2 is broken. Renew another 5A fuse.



**Every fuse be taken shall not over 5A, if larger output contact current is requested, use another larger amp relay to control its relay. ( see left diagram )**

**For example, if a fuse which over 5A be taken, it may cause Main output contact be melt as overheat, and can not break, this will cost much more in repairing.**

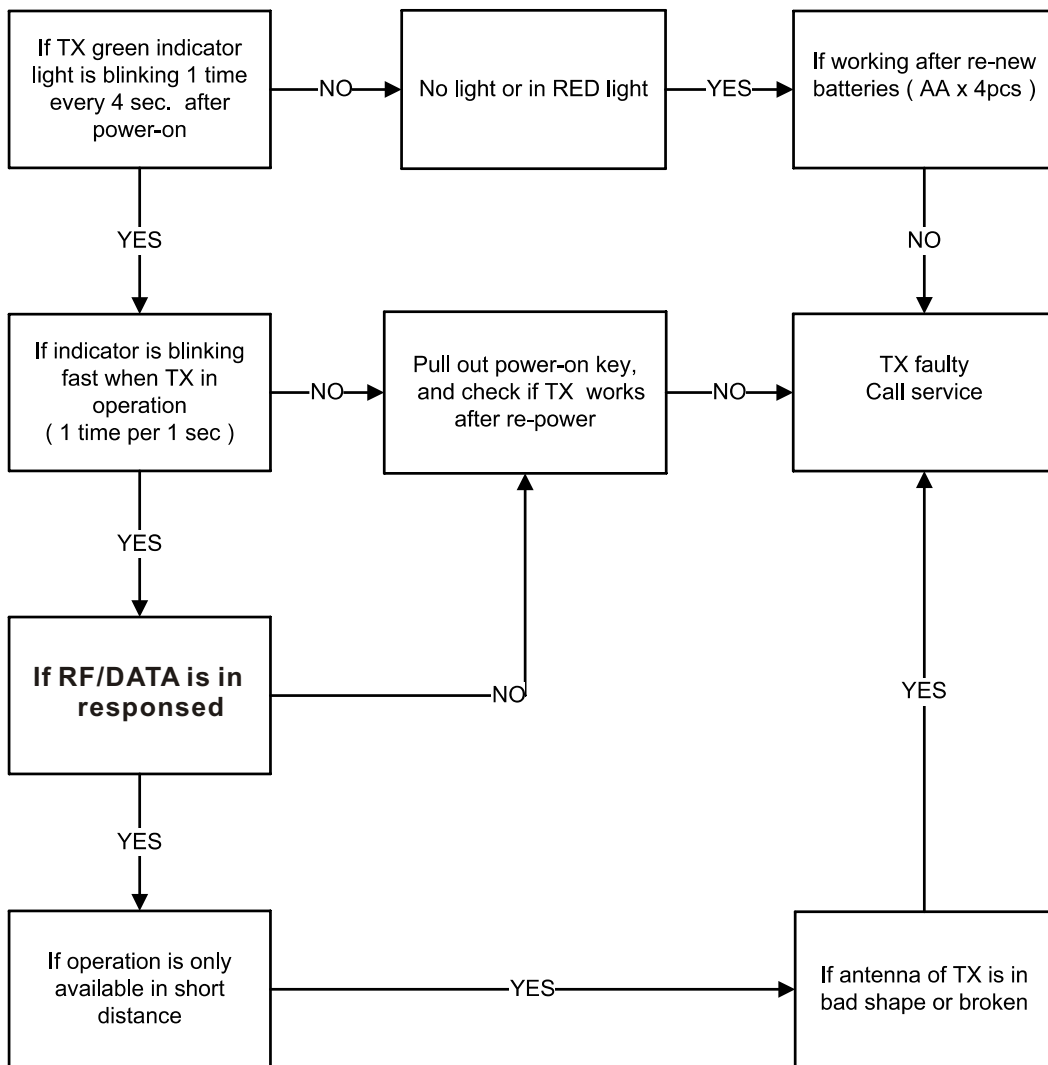
**Please do follow the trouble-shooting steps, or we shall have no direct/indirect duty for any of your property loss!**

( fig. 12 )

*F1\*: power fuse ( 0.5A )  
F2\*: protection fuse ( 5A )*

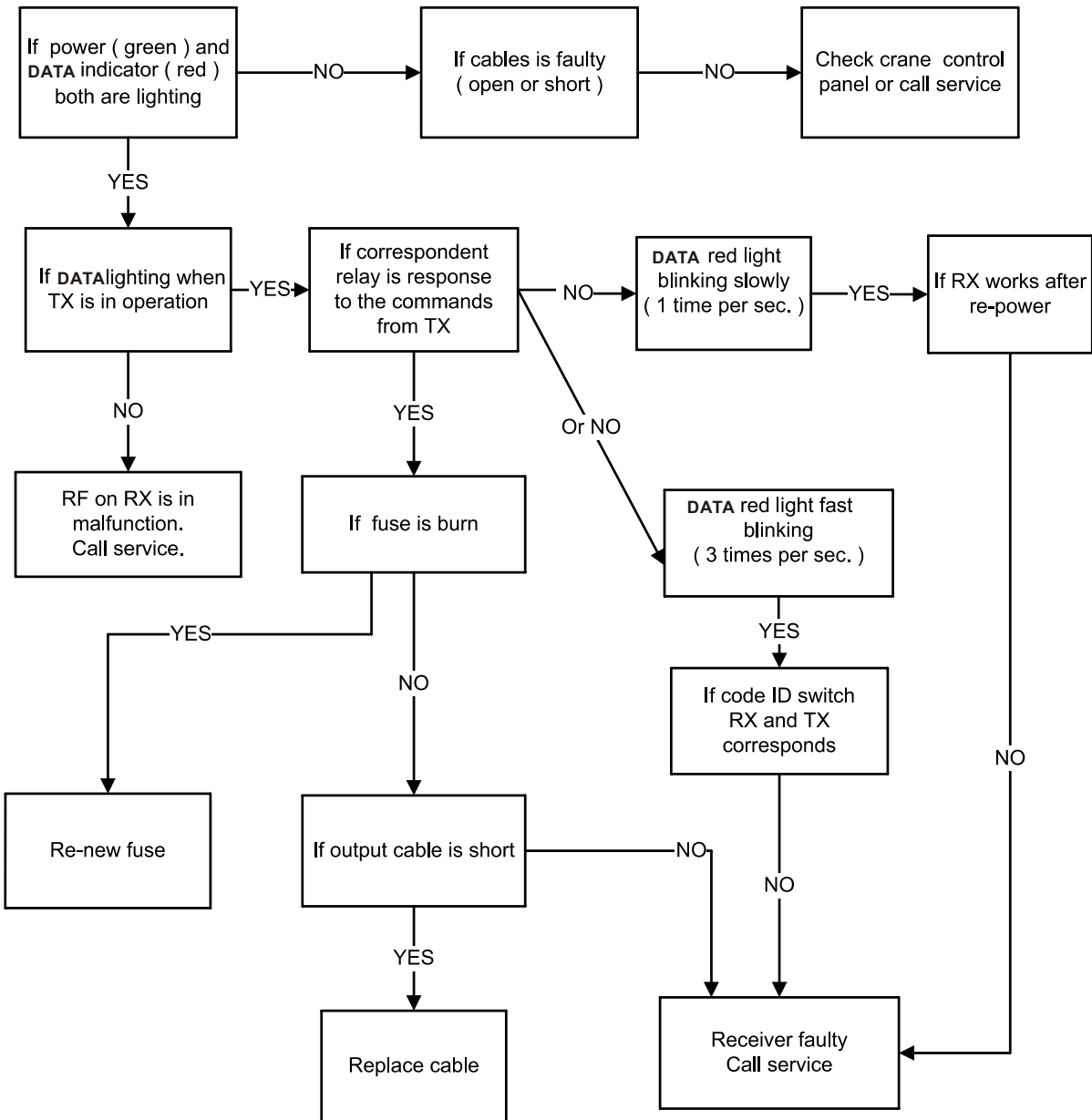
## Apollo System- Transmitter ( TX ) General trouble shooting

**NOTE:**  
Please make certain the following status before trouble shooting.  
(1) The hoist/crane or device is subject to control works  
(2) The TX outlook is in good condition without any leakage  
(3) Receiver works.



## Apollo System- Receiver ( RX ) General trouble shooting

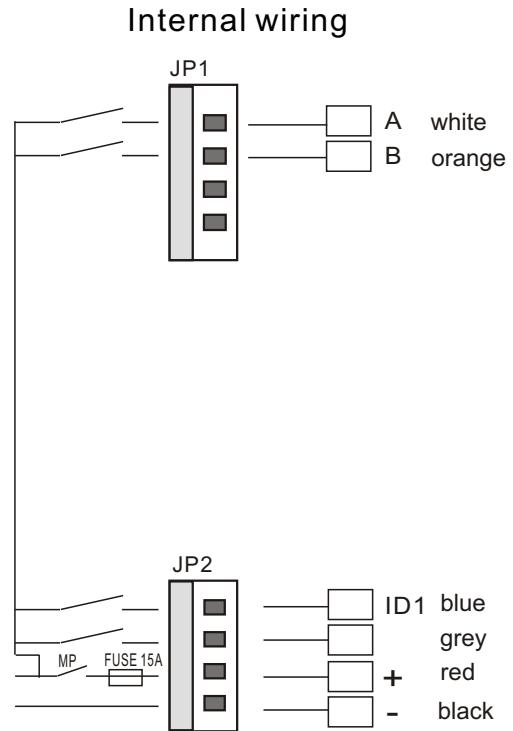
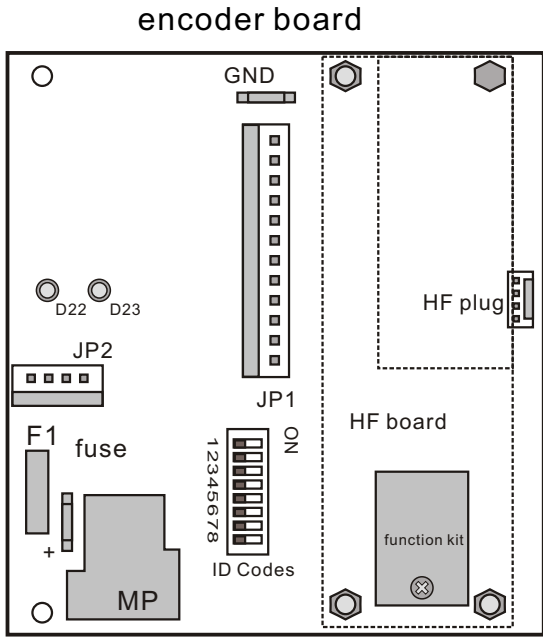
**NOTE:**  
Please make certain the following status before trouble shooting:  
(1) The crane or device being subject to control works.  
(2) The RX outlook is in good condition without any leakage  
(3) Transmitter works.



# **APOLLO ( H series ) INSTALLATION WIRING DIAGRAM**

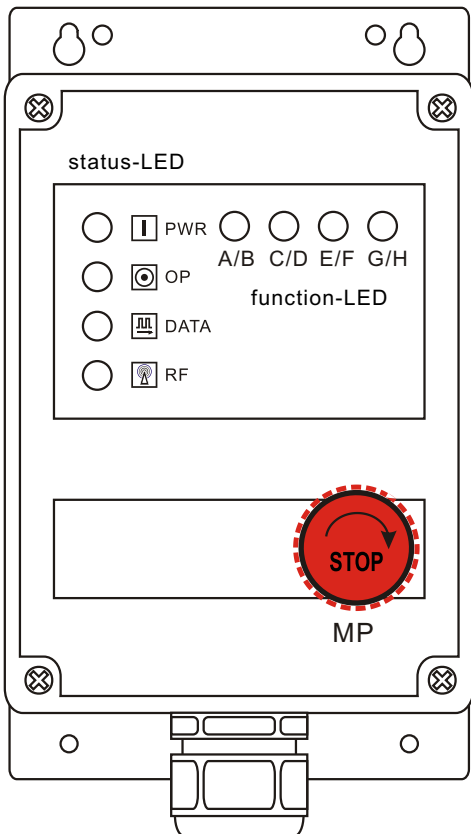
The models listed are standard only,  
the custom-made design is available

# APOLLO H1-2PB Installation Wiring Diagram

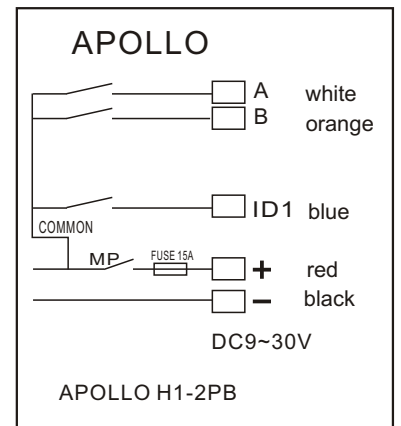
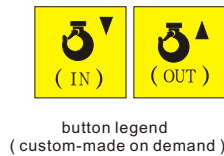
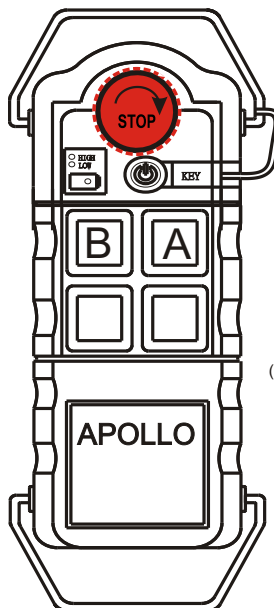


- Features:**
1. ID1 main relay is set for oil pump to be linked with each movement.
  2. Furnished with control cable 2M long.
  3. Wrecker button legend is available on demand.
  4. Each set of motion ( ex.K1/K2 ) is set with interlock ex-work.

### receiver



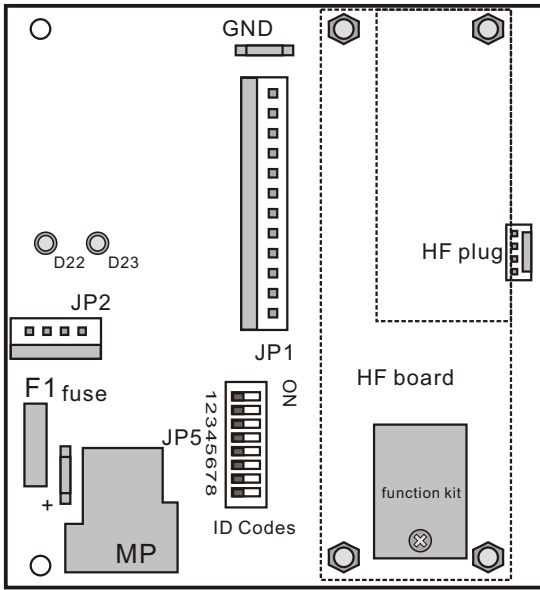
### transmitter



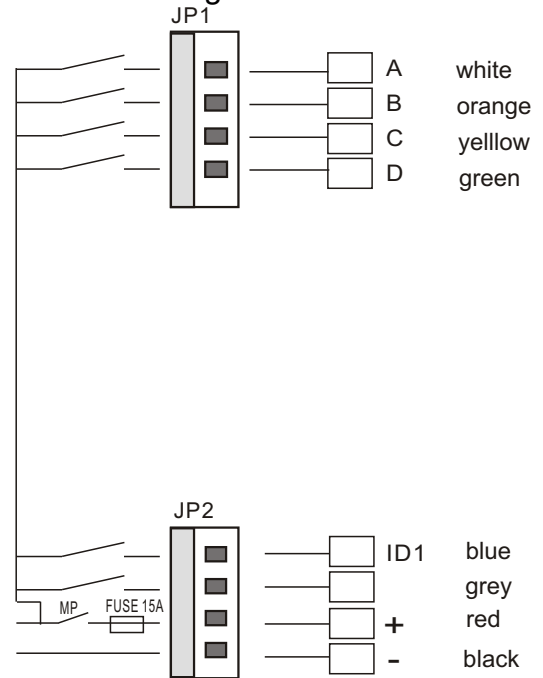


# APOLLO H1-4PB Installation Wiring Diagram

## Encoder Board



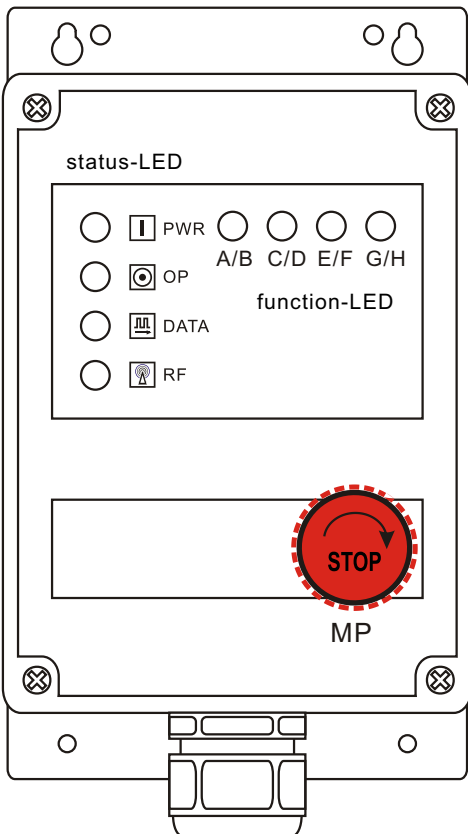
## Internal wiring



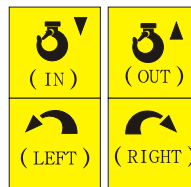
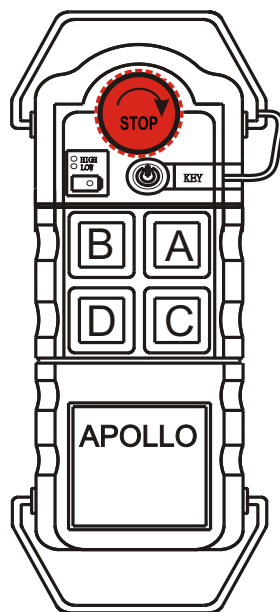
### Features:

1. ID1 main relay is set for oil pump to be linked with each movement.
2. Furnished with control cable 2M long.
3. Wrecker button legend is available on demand.
4. Each set of motion ( ex.K1/K2 ) is set with interlock ex-work.

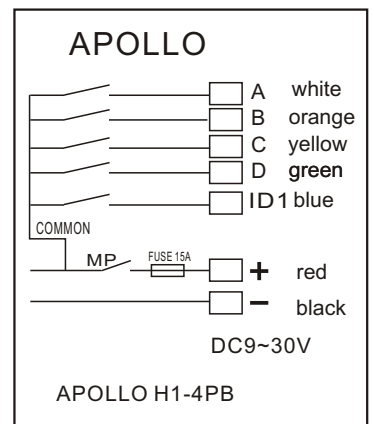
## receiver



## transmitter

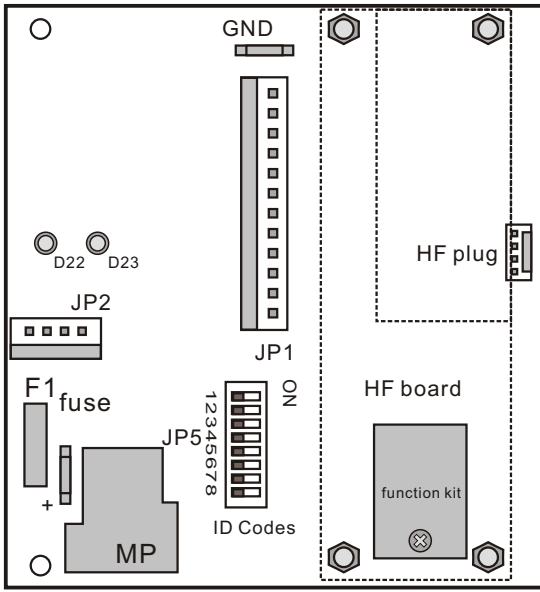


button legend (custom-made on demand)

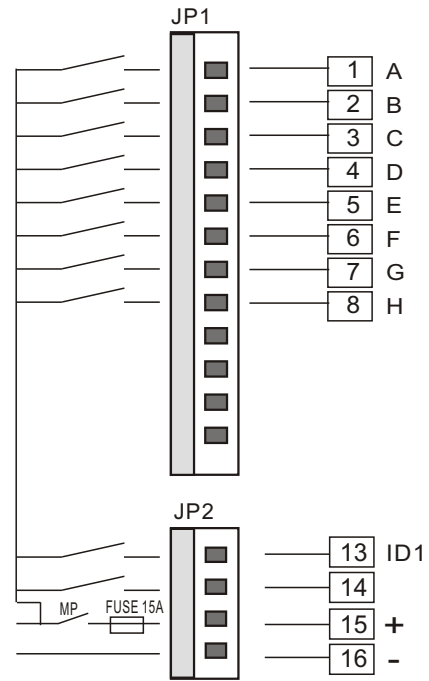


# APOLLO H1-6PB Installation Wiring Diagram

## Encoder Board



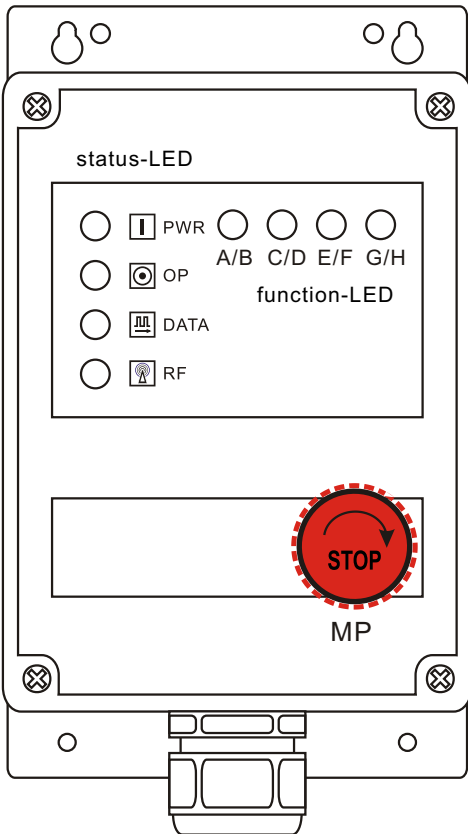
## Internal wiring



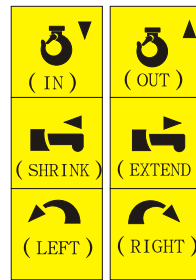
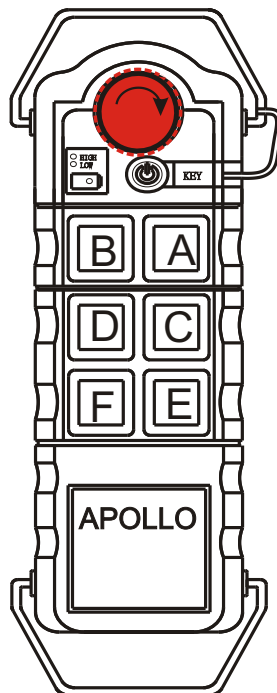
### Features:

1. ID1 main relay is set for oil pump to be linked with each movement.
2. Furnished with control cable 2M long.
3. Wrecker button legend is available on demand.
4. Each set of motion ( ex.K1/K2 ) is set with interlock ex-work.

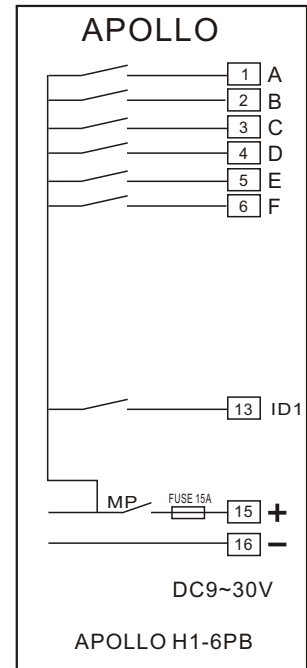
## receiver



## transmitter

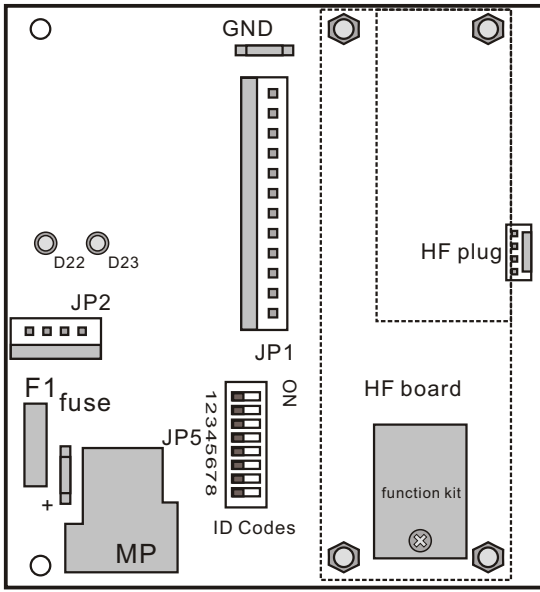


button legend  
( custom-made on demand )

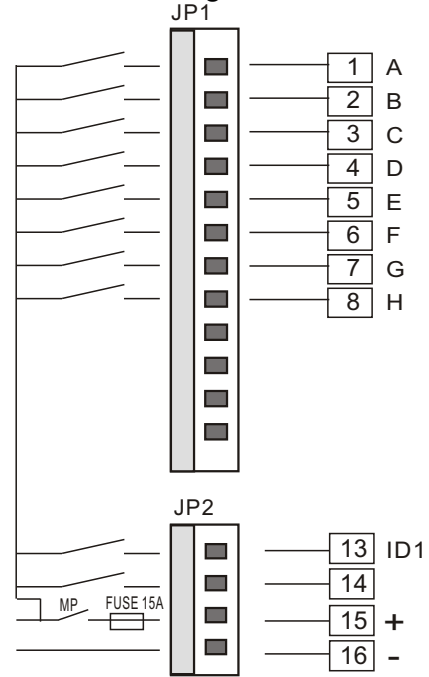


# APOLLO H1-8PB Installation Wiring Diagram

**Encoder Board**



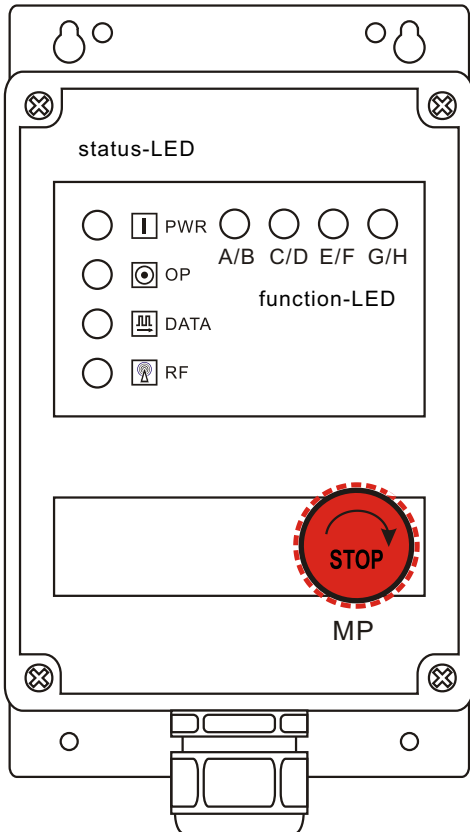
**Internal wiring**



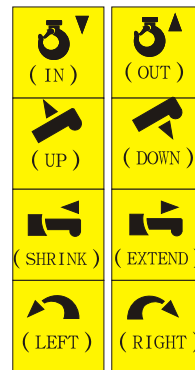
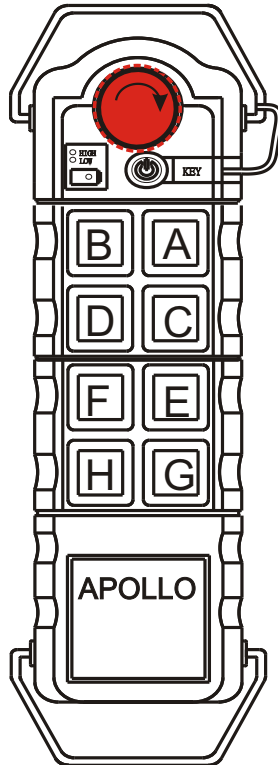
**Features:**

1. ID1 main relay is set for oil pump to be linked with each movement.
2. Furnished with control cable 2M long.
3. Wrecker button legend is available on demand.
4. Each set of motion ( ex.K1/K2 ) is set with interlock ex-work.

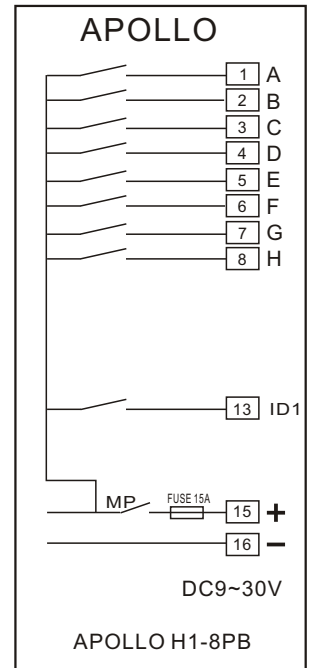
**receiver**



**transmitter**

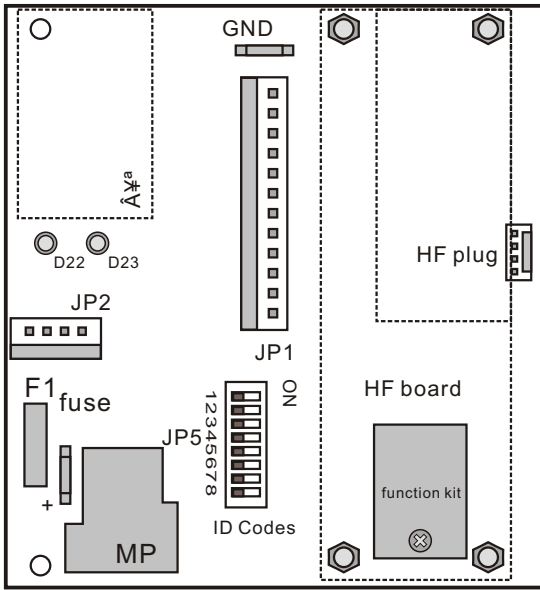


button legend ( custom-made on demand )

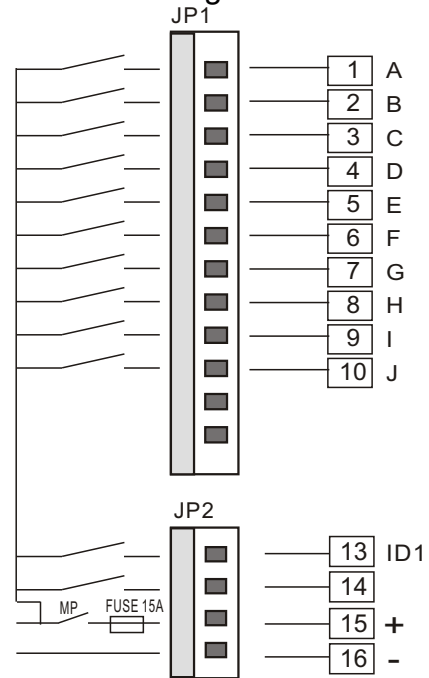


# APOLLO H1-10PB Installation Wiring Diagram

## Encoder Board



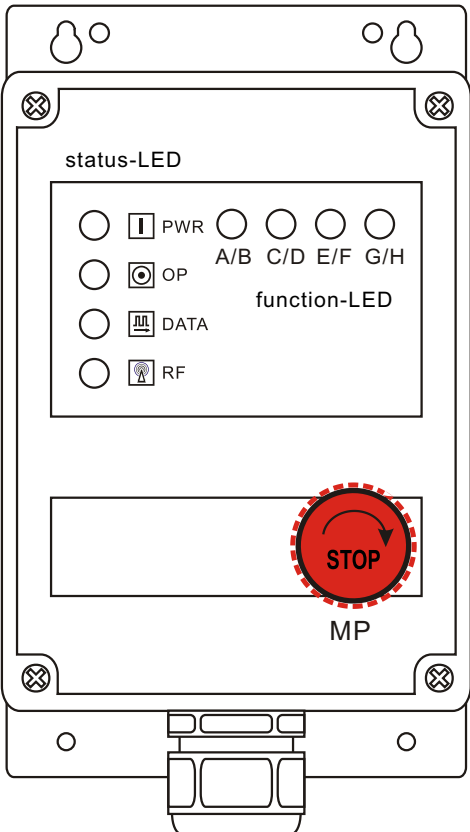
## Internal wiring



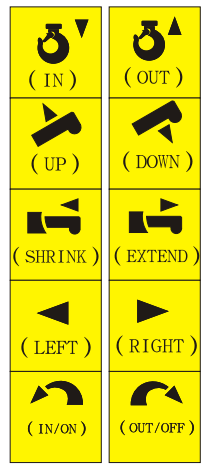
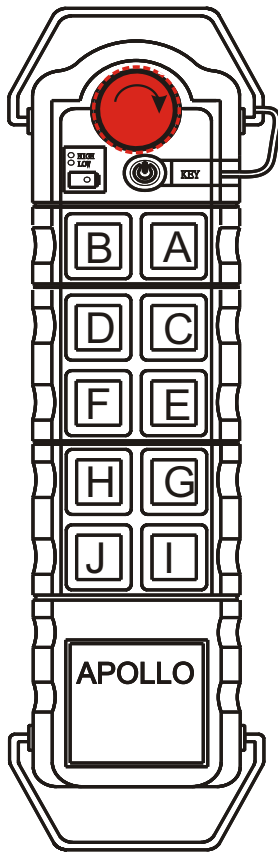
### Features:

1. ID1 main relay is set for oil pump to be linked with each movement.
2. Furnished with control cable 2M long.
3. Wrecker button legend is available on demand.
4. Each set of motion ( ex.K1/K2 ) is set with interlock ex-work.

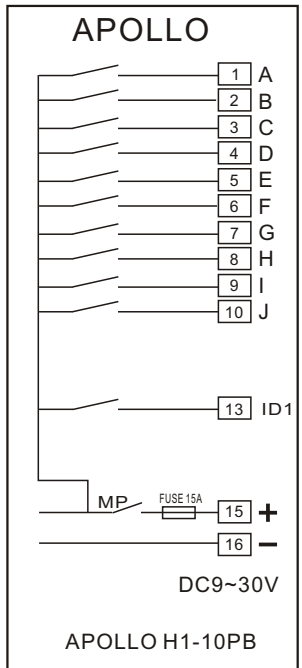
## receiver



## transmitter

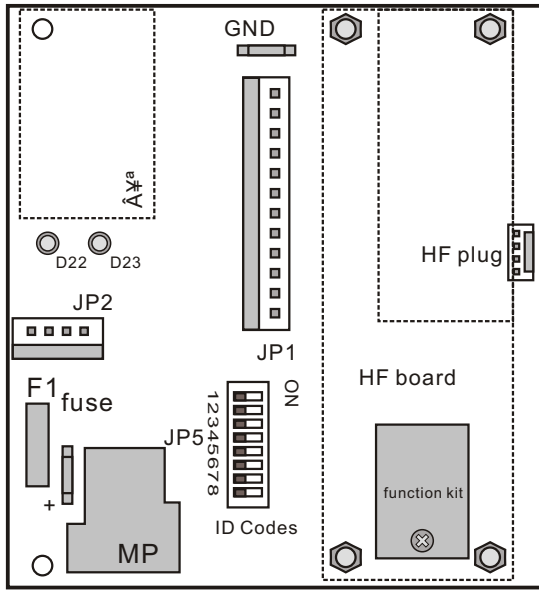


button legend (custom-made on demand)

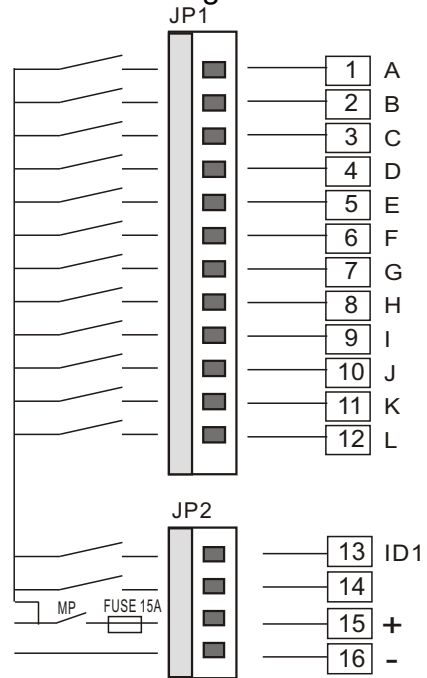


# APOLLO H1-12PB Installation Wiring Diagram

## Encoder Board



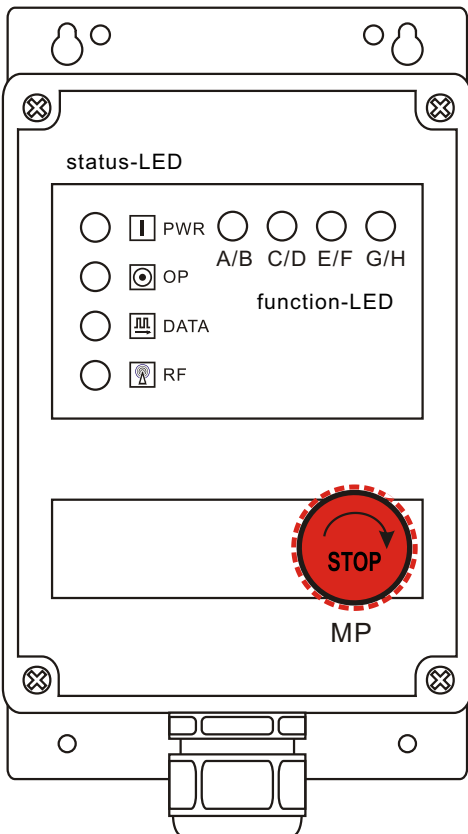
## Internal wiring



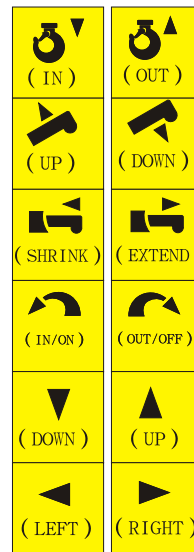
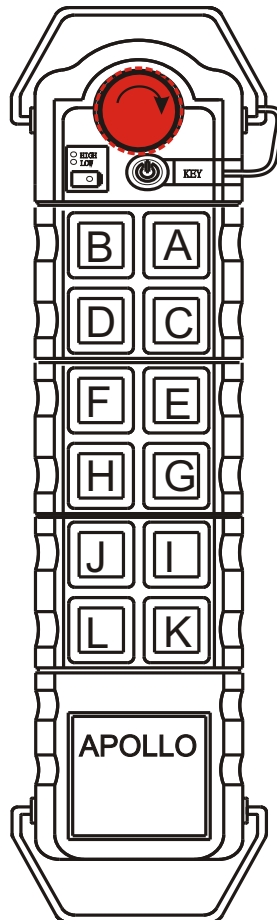
### Features:

1. ID1 is set for oil pump to be linked with each movement.
2. Furnished with control cable 2M long.
3. Wrecker button legend is available on demand.
4. Each set of motion ( ex.K1/K2 ) is set with interlock ex-work.

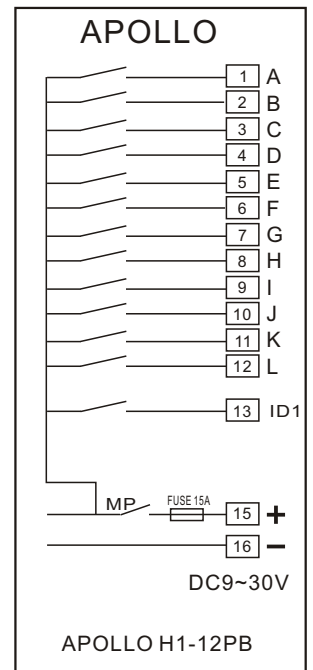
## receiver



## transmitter

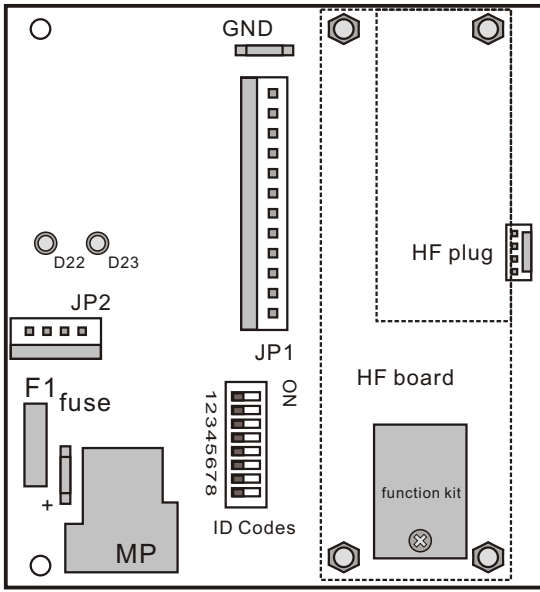


button legend  
( custom-made on demand )

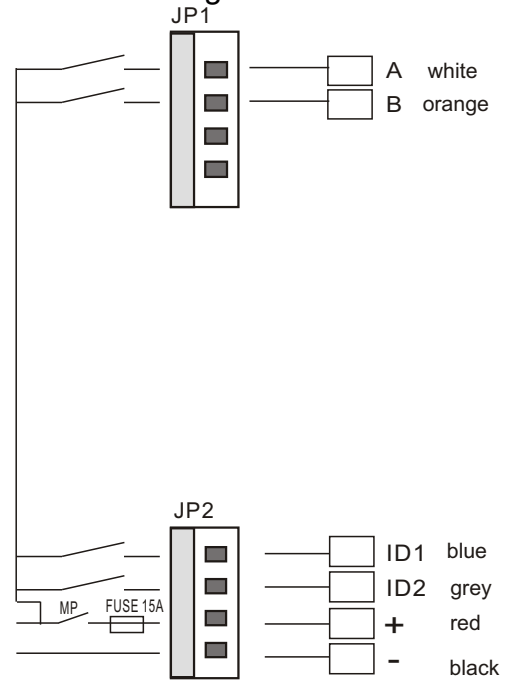


# APOLLO H2-2PB Installation Wiring Diagram

## Encoder Board



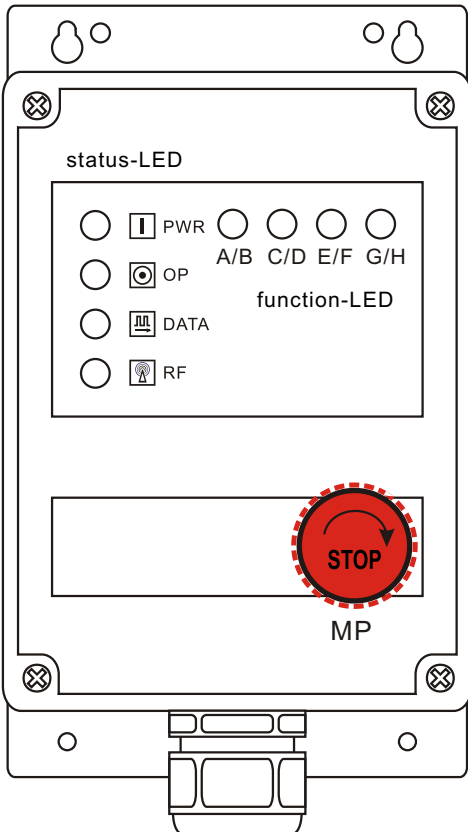
## Internal wiring



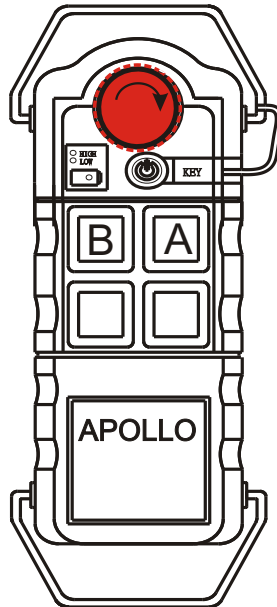
### Features:

1. ID1 is set for oil pump to be linked with each movement.
2. ID2 is set up for speed up.
3. Furnished with control cable 2M long.
4. Wrecker button legend is available on demand.
5. Each set of motion ( ex.K1/K2 ) is set with interlock ex-work.

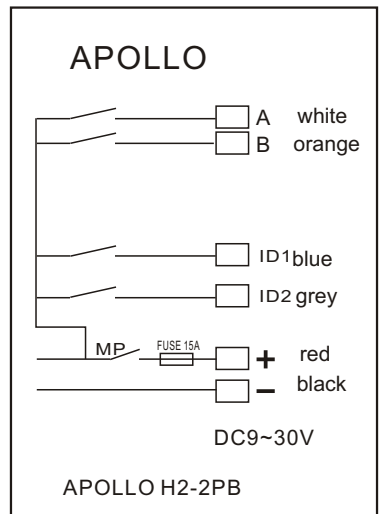
## receiver



## transmitter



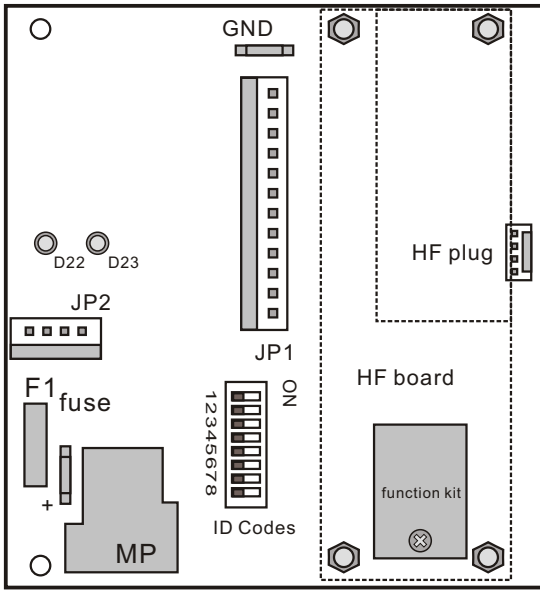
button legend  
( custom-made on demand )



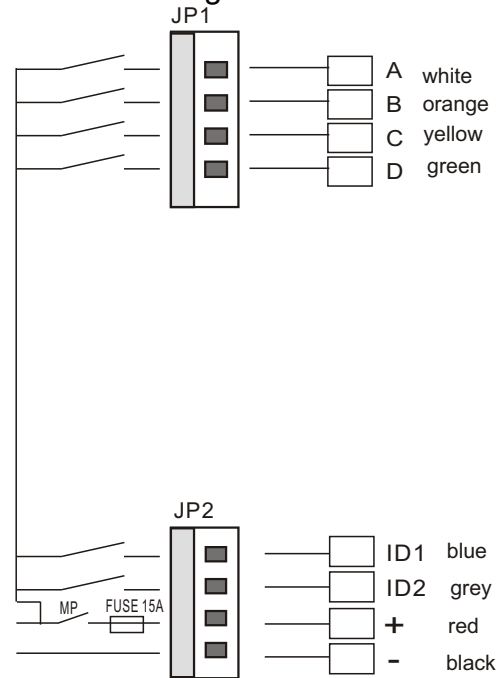
DC9~30V

# APOLLO H2-4PB Installation Wiring Diagram

## Encoder Board



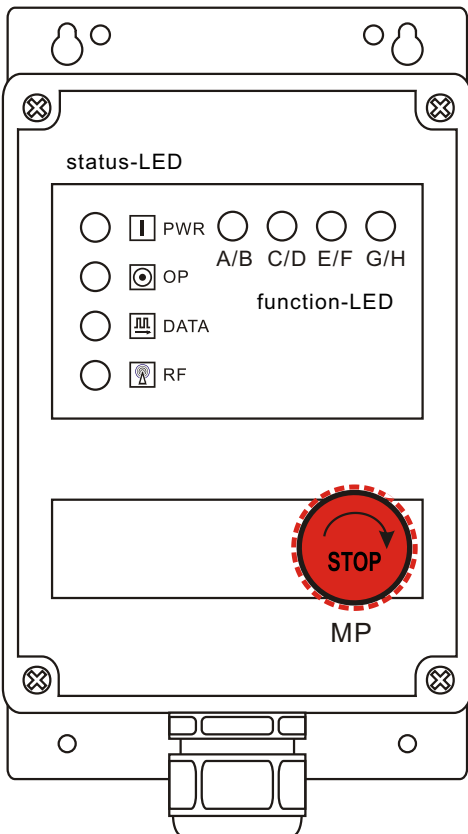
## Internal wiring



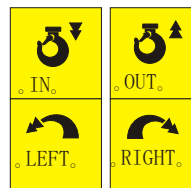
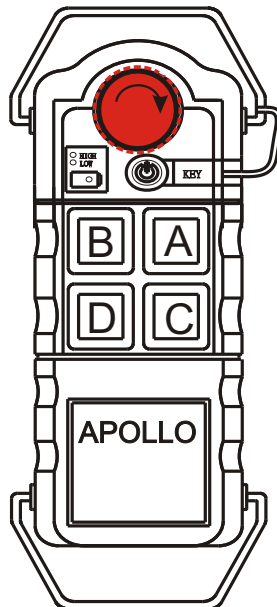
### Features:

1. ID1 is set for oil pump to be linked with each movement.
2. ID2 is set up for speed up.
3. Furnished with control cable 2M long.
4. Wrecker button legend is available on demand.
5. Each set of motion ( ex.K1/K2 ) is set with interlock ex-work.

## receiver

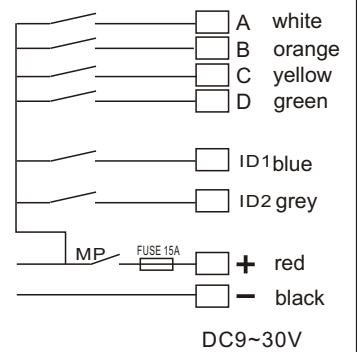


## transmitter



button legend  
( custom-made on demand )

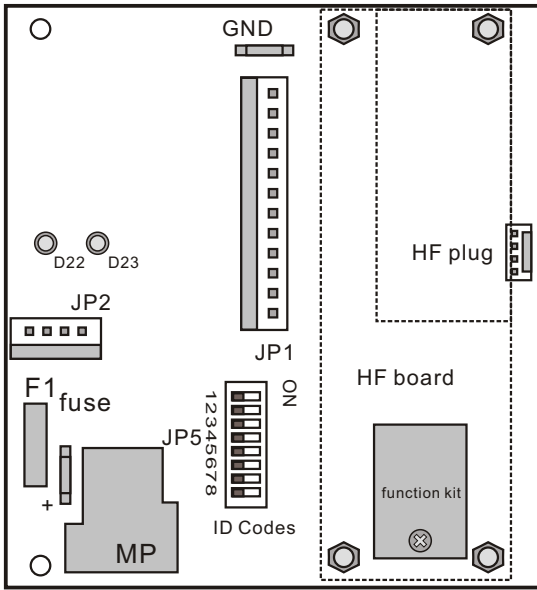
## APOLLO



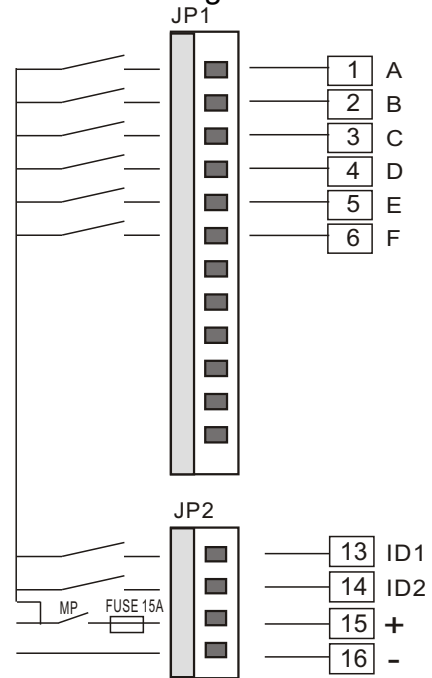
APOLLO H2-4PB

# APOLLO H2-6PB Installation Wiring Diagram

## Encoder Board



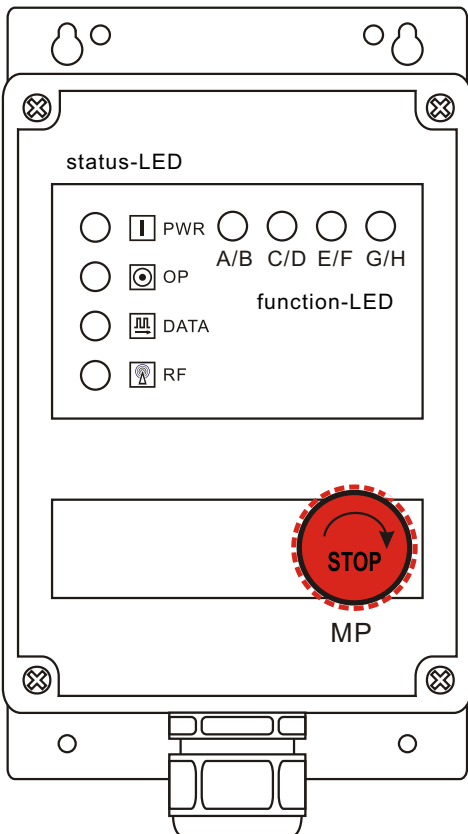
## Internal wiring



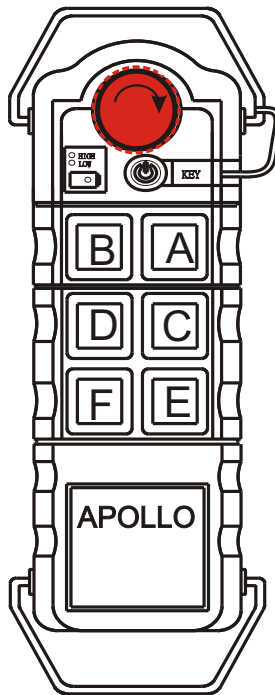
### Features:

1. ID1 is set for oil pump to be linked with each movement.
2. ID2 is set up for speed up.
3. Furnished with control cable 2M long.
4. Wrecker button legend is available on demand.
5. Each set of motion ( ex.K1/K2 ) is set with interlock ex-work.

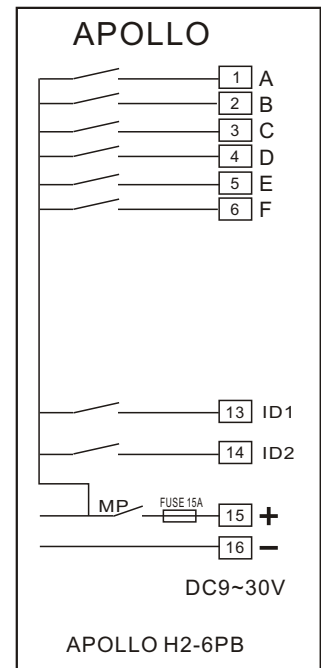
## receiver



## transmitter



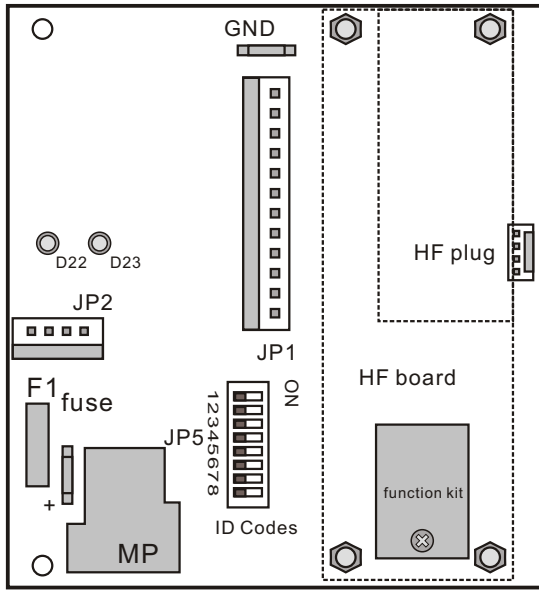
button legend  
( custom-made on demand )



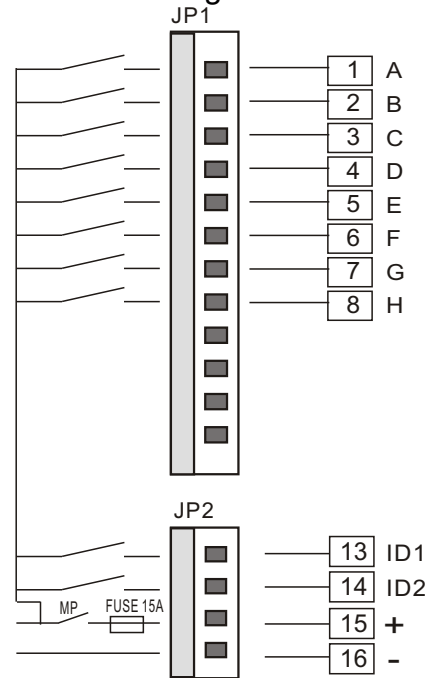


# APOLLO H2-8PB Installation Wiring Diagram

## Encoder Board



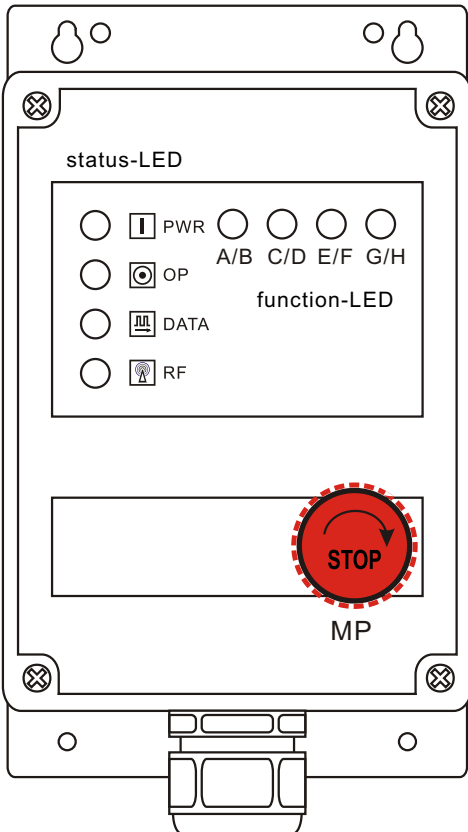
## Internal wiring



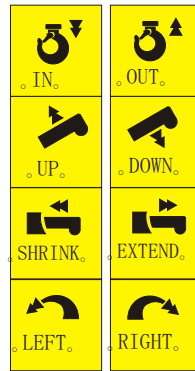
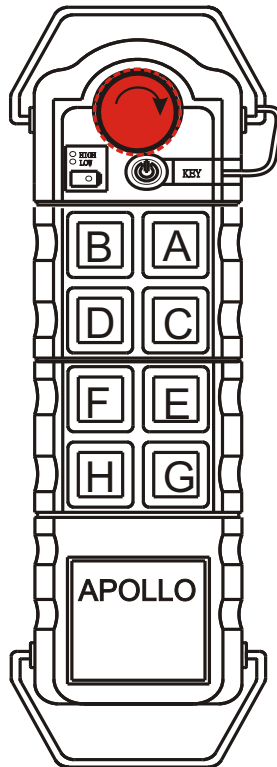
### Features:

1. ID1 is set for oil pump to be linked with each movement.
2. ID2 is set up for speed up.
3. Furnished with control cable 2M long.
4. Wrecker button legend is available on demand.
5. Each set of motion ( ex.K1/K2 ) is set with interlock ex-work.

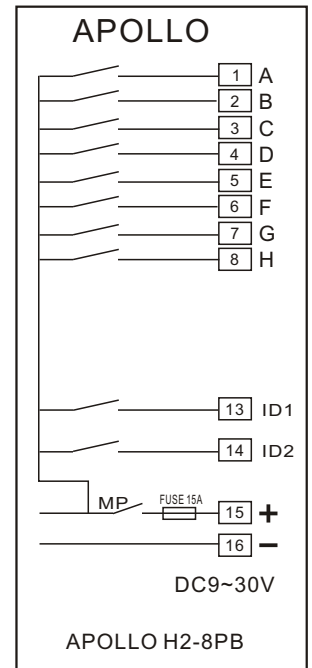
## receiver



## transmitter

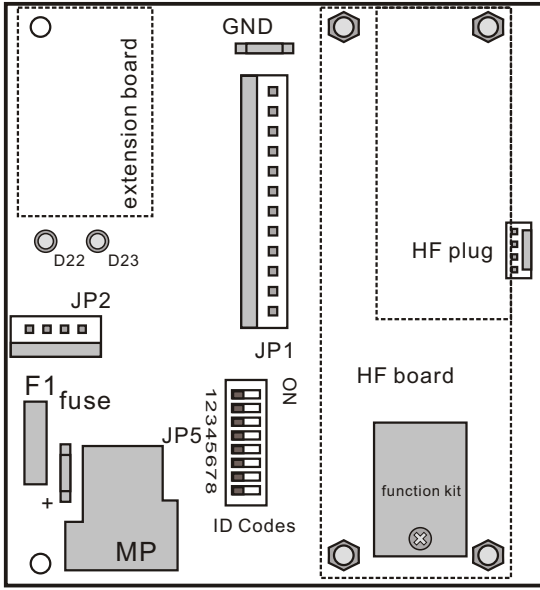


button legend  
(custom-made on demand)

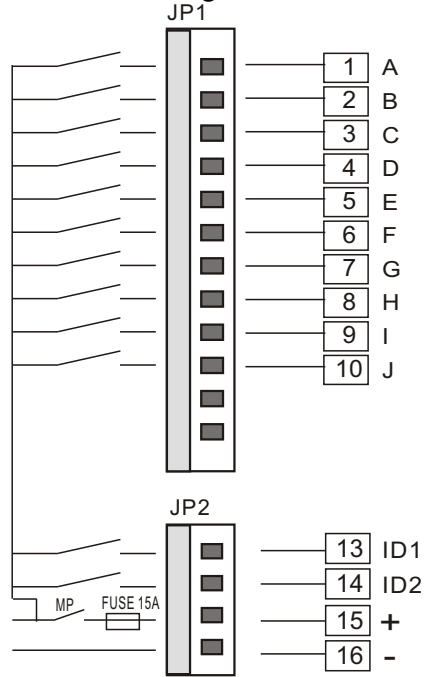


# APOLLO H2-10PB Installation Wiring Diagram

## Encoder Board



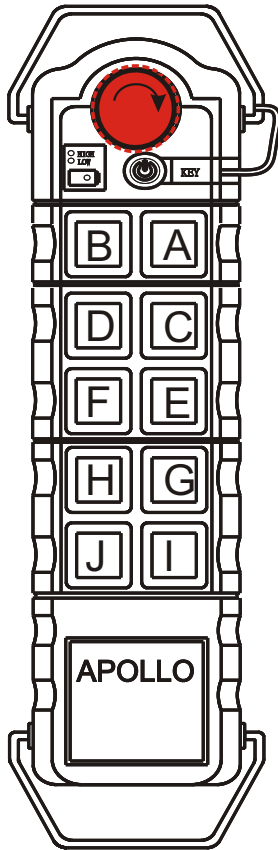
## Internal wiring



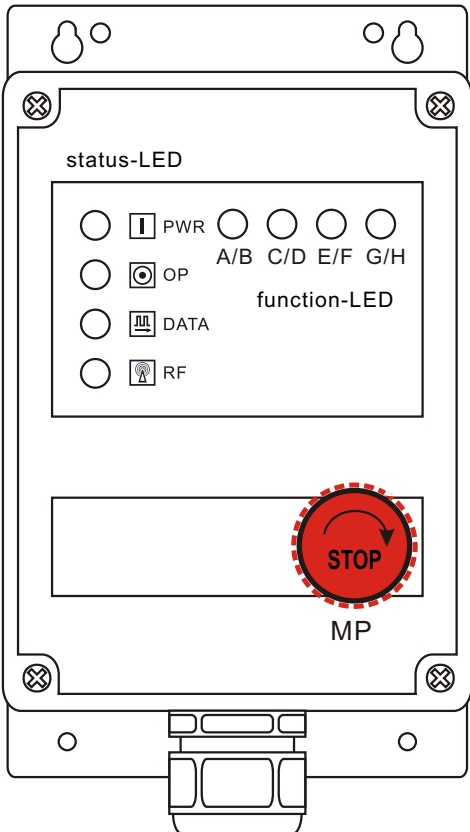
### Features:

1. ID1 is set for oil pump to be linked with each movement.
2. ID2 is set up for speed up.
3. Furnished with control cable 2M long.
4. Wrecker button legend is available on demand.
5. Each set of motion ( ex.K1/K2 ) is set with interlock ex-work.

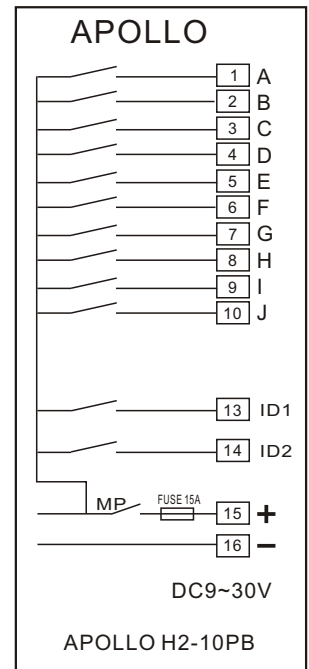
## transmitter



## receiver

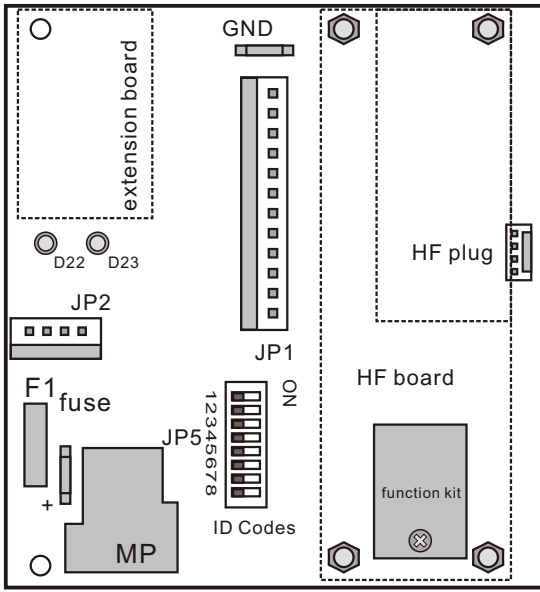


button legend  
( custom-made on demand )

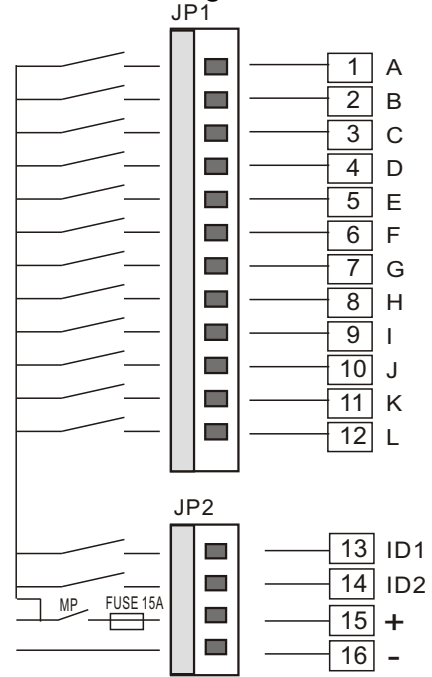


# APOLLO H2-12PB Installation Wiring Diagram

## Encoder Board



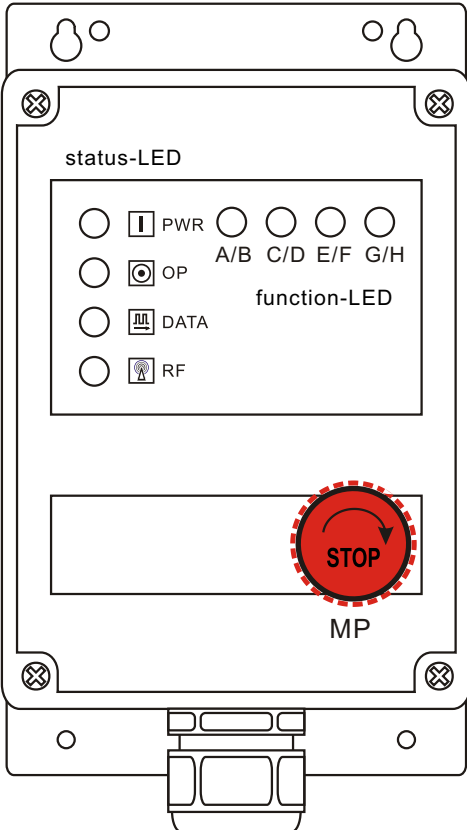
## Internal wiring



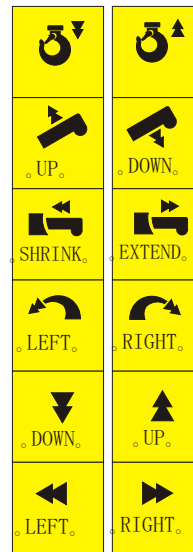
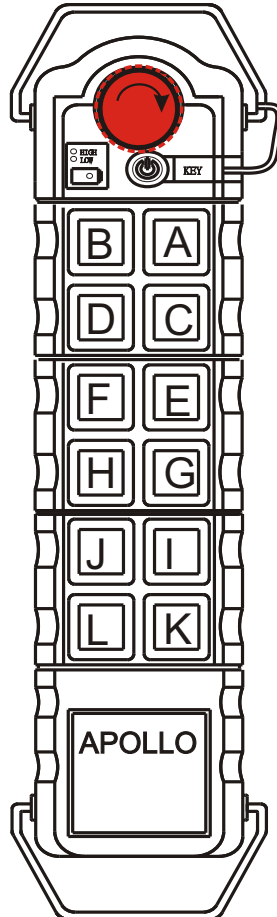
### Features:

1. ID1 is set for oil pump to be linked with each movement.
2. ID2 is set up for speed up.
3. Furnished with control cable 2M long.
4. Wrecker button legend is available on demand.
5. Each set of motion ( ex.K1/K2 ) is set with interlock ex-work.

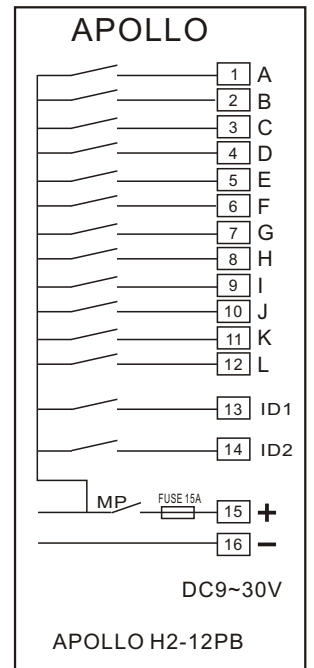
## receiver



## transmitter



button legend  
( custom-made on demand )



**LIMITED ONE YEAR WARRANTY**

The equipment is warranted for one year from date of purchase against defects in materials or workmanship provided it was purchased from 3-Elite or authorized dealer.

This warranty does not cover equipment which has been abused or damaged by careless handling or shipping, OR damaged by nature disaster such as earthquake, typhoon etc.

The careless handling including self-change components, antenna, voltage; or circuits, and switches increased would be deemed as end of warranty, user should cover the repairing fee.

Should any defect develop, we will, at our option, repair or replace any defective parts without charge for either parts or labour. If we cannot correct the defect in your equipment, we will replace it at no charge with a new one. We will pay for the cost of returning your merchandise to you.

This warranty applies only to items returned to us, shipping costs prepaid, within one year from the date of purchase.

**STANDARD ACCESSORY**

transmitter x 1       receiver x 1       handbook x 1

screw x 4       transmitter sleeve x 2       shoulder strap x 1

