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**OPERATION  
GUIDE** 

*Industrial  
Radio Remote Controller*



**English Version**

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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. To comply with the FCC RF exposure compliance requirements, this device and its antenna must not be co-located or operating to conjunction with any other antenna or transmitter. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



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## Introduction 😊

To satisfy various requests in remote controller, we are now finally researched a high quality, industrial grade remote controller --- APOLLO system. Provided 8 push buttons, 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 temperature is too high. Of course, it can also raising 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 exchanging 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 installation.



## Technical Specifications ☺

- Take dual-security design, equipment protected thoroughly, every output will automatically break when CPU out of work.
- Take common mode non-earth ground EMI noise-rejection circuit, which can against receiver malfunction occurred by operator's error connection, also releasing the installation complex.

### Transmitter

**Frequency range:**  
300 MHz ( 20 channels ) – for Asian.  
433 MHz ( 20 channels ) – for American  
868 MHz ( 20 channels ) –for Europe  
**Channel spacing:** 50KHz , 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:** 217×70×49 mm  
**Weight:** 515g

### Receiver

**Frequency range:**  
300 MHz ( 20 channels ) – for Asian  
433 MHz ( 20 channels ) – for American use.  
868 MHz ( 20 channels ) – for Europe use.  
**Channel spacing:** 50KHz , 60KHz  
**Antenna:** Internal type, impedance as 50Ω  
**Relay:** 5A, 250V, AC  
**Operation temperature:** -10°C ~ +70°C  
**Enclosure:** IP65  
**Source voltage:** 220V AC, 50 / 60Hz (STD)  
**Consumption:** < 12W  
**Size:** 250×120×75 mm  
**Weight:** 1080g

## How to install ☺

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:

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



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(h) Fix the wired pendant in safe position.

Take 4pcs of 8mm tap screws,  
screw tightly by electronic tools.



( fig. 1 ) ( example for fix / install receiver )

- (a) **Ensure the output contact as Main / A / B/ C / D / E/ F / G / H can not over 5A ( see Wiring diagram after page 18 ).**
- (b) **Please double check exactly the wiring layout after receiver's installation, then turn the power on.**
- (c) **Please mount the receiver away from INVERTER, MOTOR and connected CABLE at least 3M to avoid interference happened**

## Operation steps ☺

### How to start up the Apollo device:

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

### How to turn off the APOLLO device:

1. Press down the “ mushroom “ EMS push button ( At this moment, the internal Main contact will be OFF ).
2. Pull out the transmitter power-on key.
3. Shut down the receiver.



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## Function Setting : ☺

APOLLO system has complete setting software, which accepts different requests from customers. An extra Function Kit may be needed for custom-made settings. ( See fig. 3 )

### NOTE:

- 1) The function setting program is only operated under **Window 98 Version**.
- 2) The function kit has to extra plug in the JP3 ( DB9 pin ) on **RECEIVER** decoder ( relay ) board to work the function setting.
- 3) Operation steps:
  - Clip ' start ' in Window 98
  - Select ' program '
  - Select ' Apollo '
  - Clip ' project – AP3 ' ... set up program starts now

**Every set of motion ( A/B, C/D, E/F, G/H, I/J, K/L ) all can be set function per customer's Need. Function setting options are as the following: ( See fig. 4 )**

- 1) Interlock – ex-factory setting, when pressing A and B simultaneously, no function output , this is for security reason.
- 2) Non-Interlock – For some occasions if the interlock is not necessary, just clip the ' non-interlock ' function.



3) 3 Speed – Pushbutton A and B will share their 2<sup>nd</sup> step relay to apply as the 2<sup>nd</sup>/3<sup>rd</sup> relay , i.e. A2 relay for 2nd step relay, B2 is for 3rd step replay.

**The above pushbuttons can also be set independently for the following functions :**

- 1) Normal – Normal function, press button and RELAY is on, release button is off.
- 2) Toggle – Press Firstly is ON, press again is OFF, please note the function is only for 1<sup>st</sup> speed , 2<sup>nd</sup> speed is no such function.
- 3) Special – For some special application, such as for hoist 1<sup>st</sup> step and 2<sup>nd</sup> step is operated by two different motor, the special function setting can be set to SWITCH the first motor and second motor. And 1<sup>st</sup> step and 2<sup>nd</sup> step can set “ SWITCH DELAY TIME “ from 0.1~5 sec.  
Or you may set two Trolleys ( Trolley A/B ) be operated by turns.  
< using Toggle & Interlock setting >. ( see fig.4 )

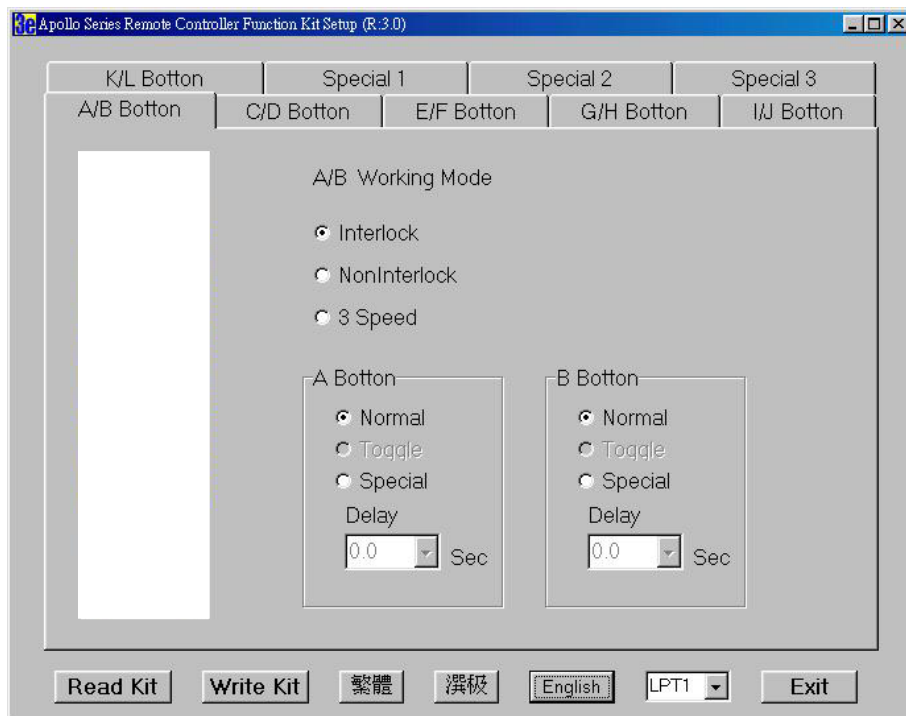


Function Kit ( fig. 3 )

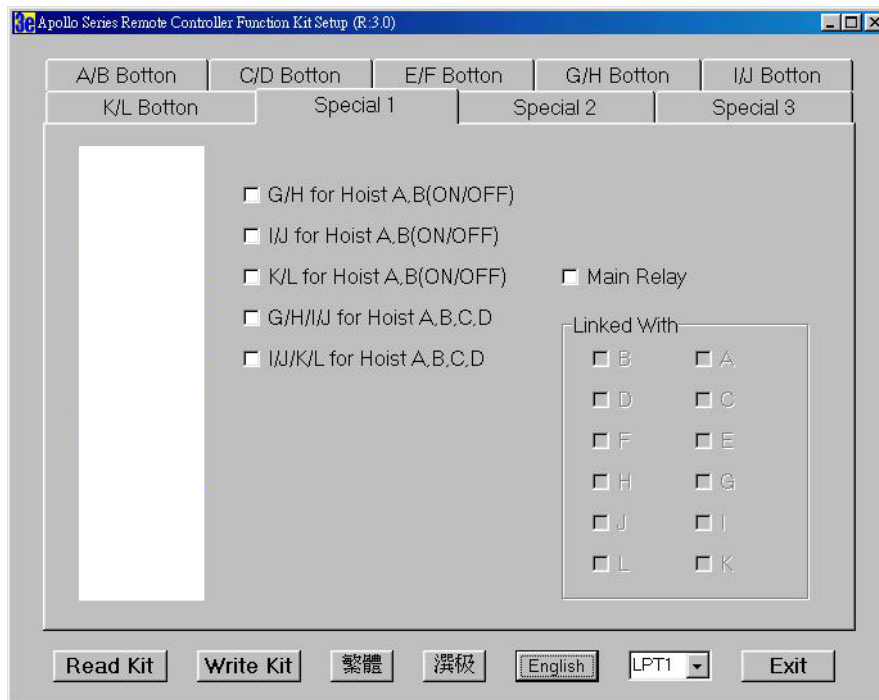
4) Main Relay “ linked with “ – Main relay can be set to link with movement relay, this function normally to apply on hydraulic system for oil pump use. ( see fig. 5 )

**NOTE !!**

**Every set of motion ( A/B, C/D, E/F, G/H, I/J, K/L ) is interlocked to each other as ex-factory Setting. That means to press up/down simultaneously , there is no function output for security reason.**




( fig. 4 )



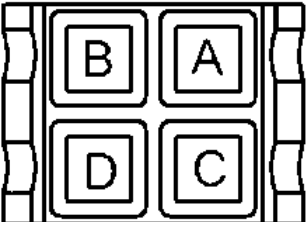
( fig. 5 )

## APOLLO Function Switch for Multi-Hoists:

	<p><b>Function: A, B or A+B hoist function switch.</b></p> <p><b>Operation:</b> -press button A, then corresponded relay A will keep hold ( for hoist A , relay B will release.  Press button B, then corresponded relay B will keep hold ( for hoist B ), relay A will release.  Press button A and B together, then corresponded relay A and B both will keep hold.</p> <p><b>Position:</b> K9, K10, K11, K12, K13, K14</p>
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	<p><b>Function :</b> A or B or C or D hoist function switch.</p> <p><b>Operation:</b> Press button A or B or C or D, then corresponded relay A or B or C or D will keep hold.</p> <p><b>Position:</b> K9, K10, K11, K12, K11, K12, K13, K14</p>
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### Auto Sleep Mode on Transmitter ☺

APOLLO transmitter could be set to sleep mode automatically, for higher security request, shorten S3 ( could be found in encoder board ) would make transmitter into sleep mode automatically after 5 minutes without operation. Simply return EMS push button to re-start APOLLO Transmitter. ( setting already ex-works )

### Auto shut down on Receiver ☺

APOLLO receiver could be set to shut down mode automatically, for higher security request, shorten S2.4 would make receiver shut down automatically after 5 minutes without operation ( only setting ex-work on demand ).

### Status Indicator of transmitter ☺

APOLLO transmitter has a dual-color indicator ( green\*/red\*\* ) to show various status as follows :

<b>Stand-by</b>	green indicator light is blinking 1 time every 4 sec. ( EMS is on )
<b>operation</b>	green indicator light is blinking 1 time every 1 sec. ( EMS is on )
<b>Sleep mode</b>	No indicator light is blinking ( EMS is on )
<b>Power off</b>	No indicator light is blinking. ( EMS is off )

**Green\*:** battery power is sufficient.

**Red\*\* :** battery power low. Please re-new 4pcs of AA/UM-3 ( 1.5V ) alkaline batteries, or nickel rechargeable batteries immediately.



## Status Indicator of Receiver ☺

**APOLLO receiver** has a dual-color indicator, **GREEN for POWER, RED for SQ\***.  
And the dual-color indicator ( green/red ) also shows various status as follows:

<b>Stand-by</b>	both green and red indicator light is ON.
<b>operation</b>	green indicator light is ON, SQ ( red light ) is off.
<b>Power off</b>	both green and red light is OFF.
<b>SQ Red light blinking slowly ( 1 time/sec. )</b>	Malfunction may be incurred, please follow our trouble shooting for repair or call service.
<b>SQ Red light blinking fast ( 3 times/sec. )</b>	the ID codes between transmitter and receiver is switched different. Please check the codes on both transmitters and receivers, and switch them to the same positions..

SQ\*: RF indicator light

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

Main, A, B, C, D, E, F, G, H, I, J, K, L has its own indicator. When indicator is light, it means the relay contact is " On ", vice versa.

## 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, see if the battery power is sufficient. If not, please change a whole set of new battery. 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 your supplier as soon as possible.

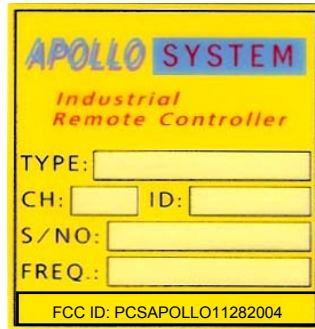
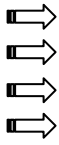


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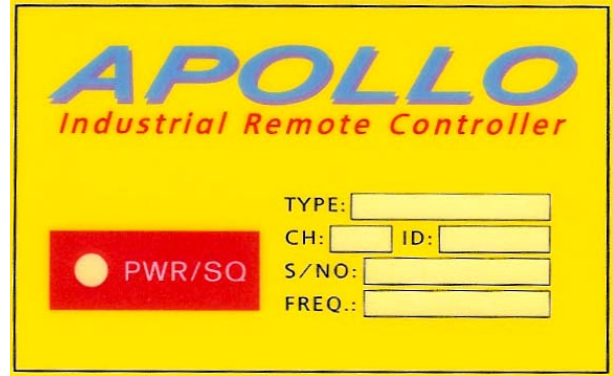
## ID Label ☺

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.

Type  
Channel / ID  
Service No.  
Frequency

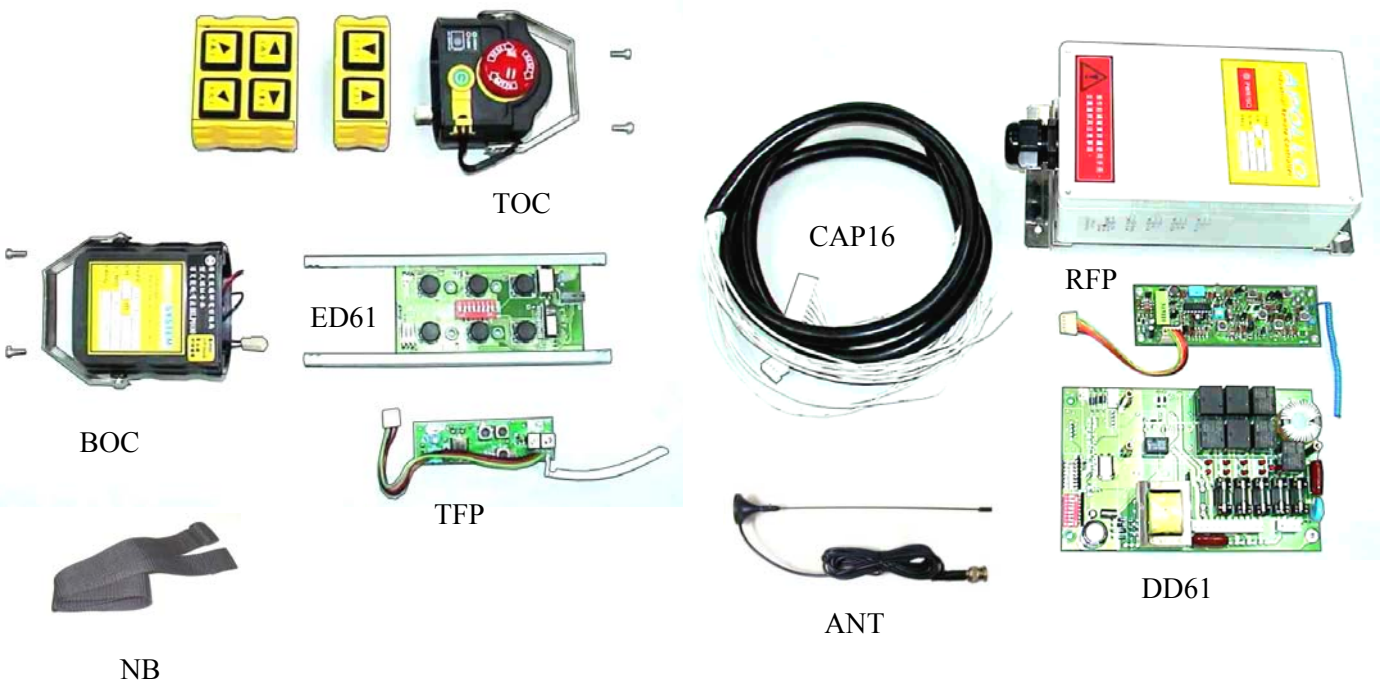


Transmitter ID label ( fig. 6 )



receiver ID label ( fig. 7 )

## Spare Parts Photo ☺





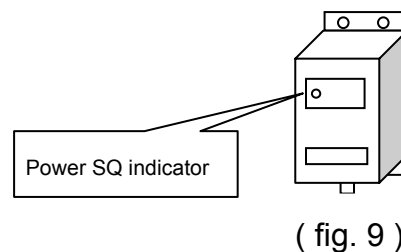
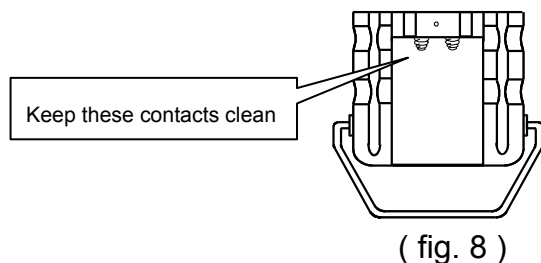
## Trouble shooting ☺

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.8 ).*

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



- ✓ **IF: Crane moves by itself, can not be controlled by both APOLLO and the original wired-control...**  
*Possibility: Malfunction occurs in crane. Please repair the crane.*
- ✓ **IF: Power on the receiver, but power SQ indicator ( see fig. 9 ) does not light...**  
*Possibility: Power has not been sent to receiver. Check if F2\* 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.*



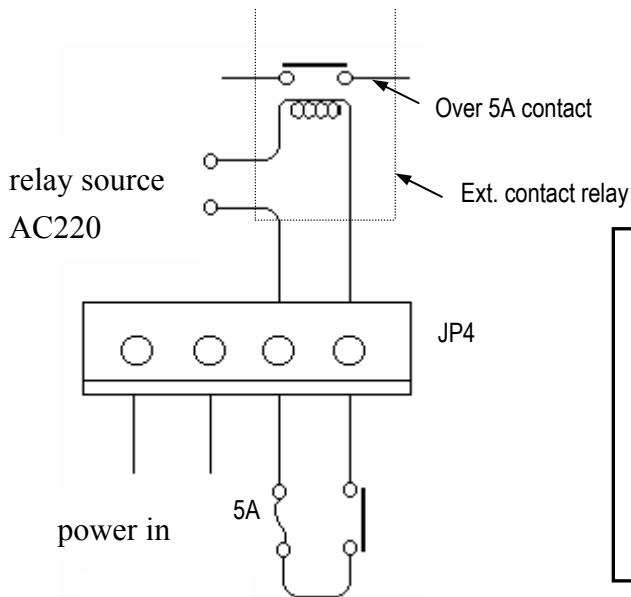
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✓ **IF: F2\* fuse has not been burn...**

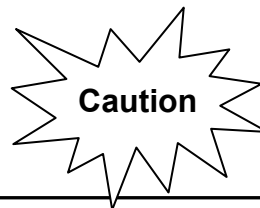
*Possibility: The power input has some problems. Check if the input voltage is correct, if the input voltage has no problem, find out the reason of abnormal voltage, or contact your supplier.*

✓ **IF: The indicator of output Main contact has light, but its relay has no output...**

*Possibility: The fuse of Main contact, F1 is broken. Renew another 5A fuse.*



( fig. 10 )



**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!**

*F1\*: power fuse ( 0.5A )*

*F2\*: protection fuse ( 5A )*

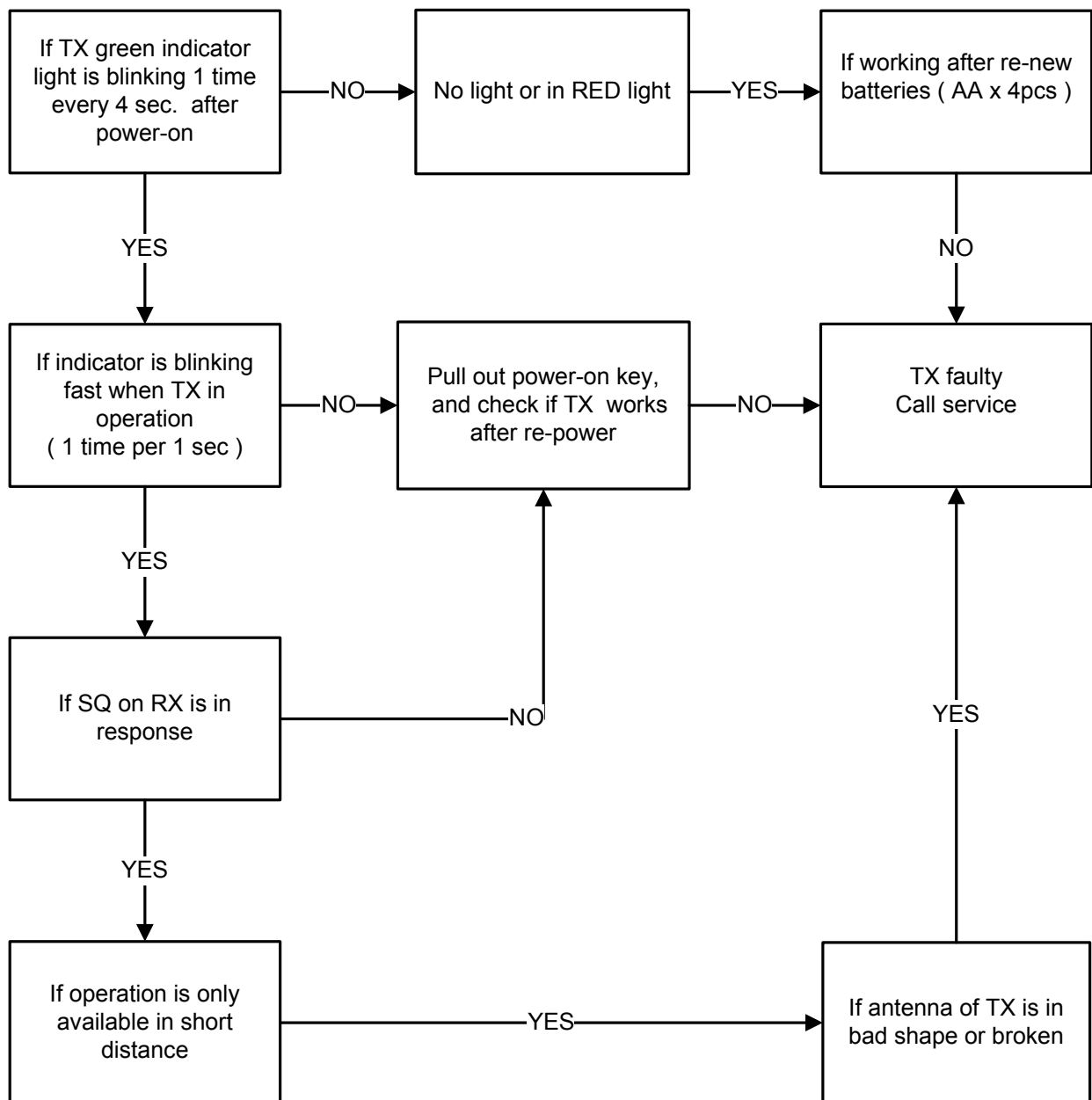
# Apollo System- Transmitter ( TX )

## 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.

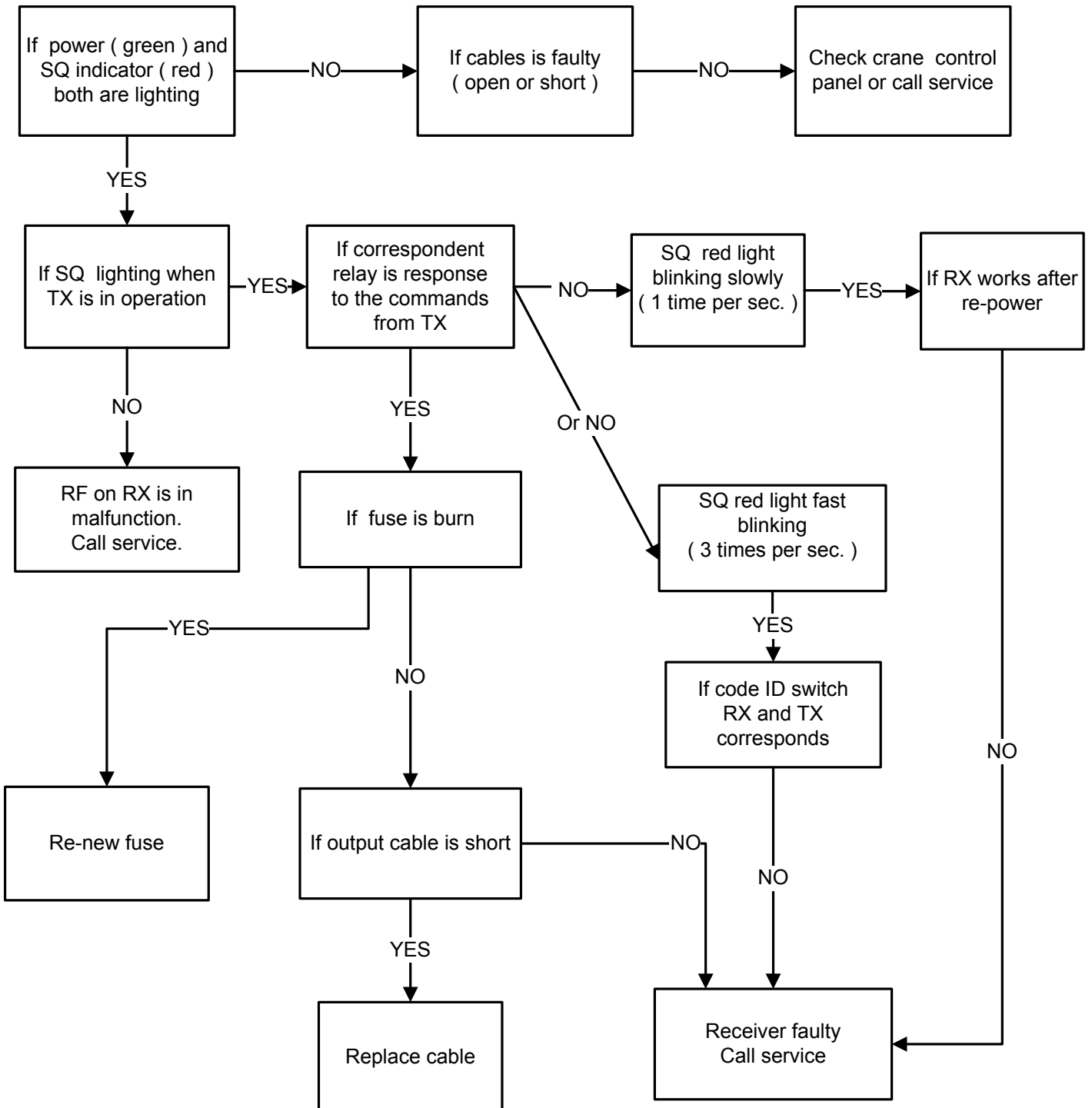


# Apollo System- Receiver ( RX )

## General trouble shooting

**NOTE:**

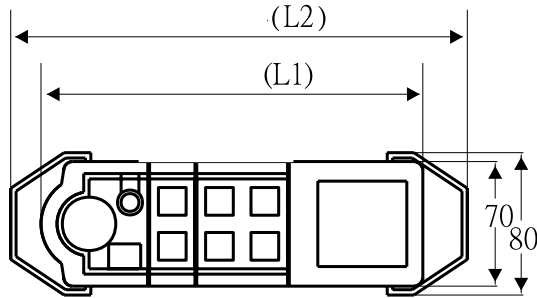
- Please make certain the following status before trouble shooting:
- (1) The crane or device being subject to control works.
  - (2) The RX outlook is in good condition without any leakage
  - (3) Transmitter works.





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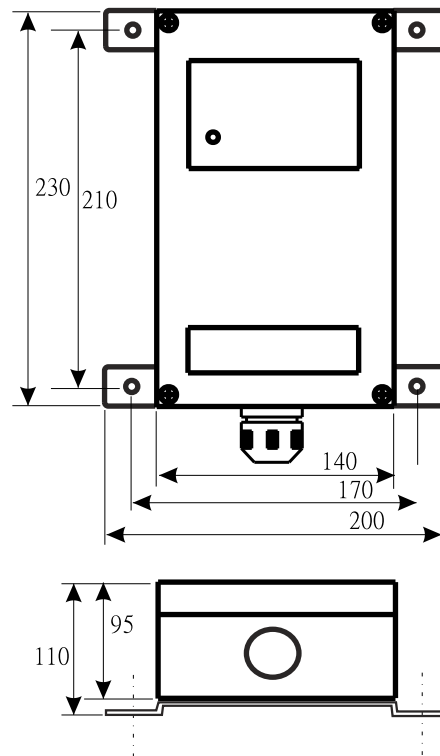
## APOLLO Transmitter Dimension



L1	L2
240.5	279.5

## APOLLO

## Receiver Dimension



Unit : mm





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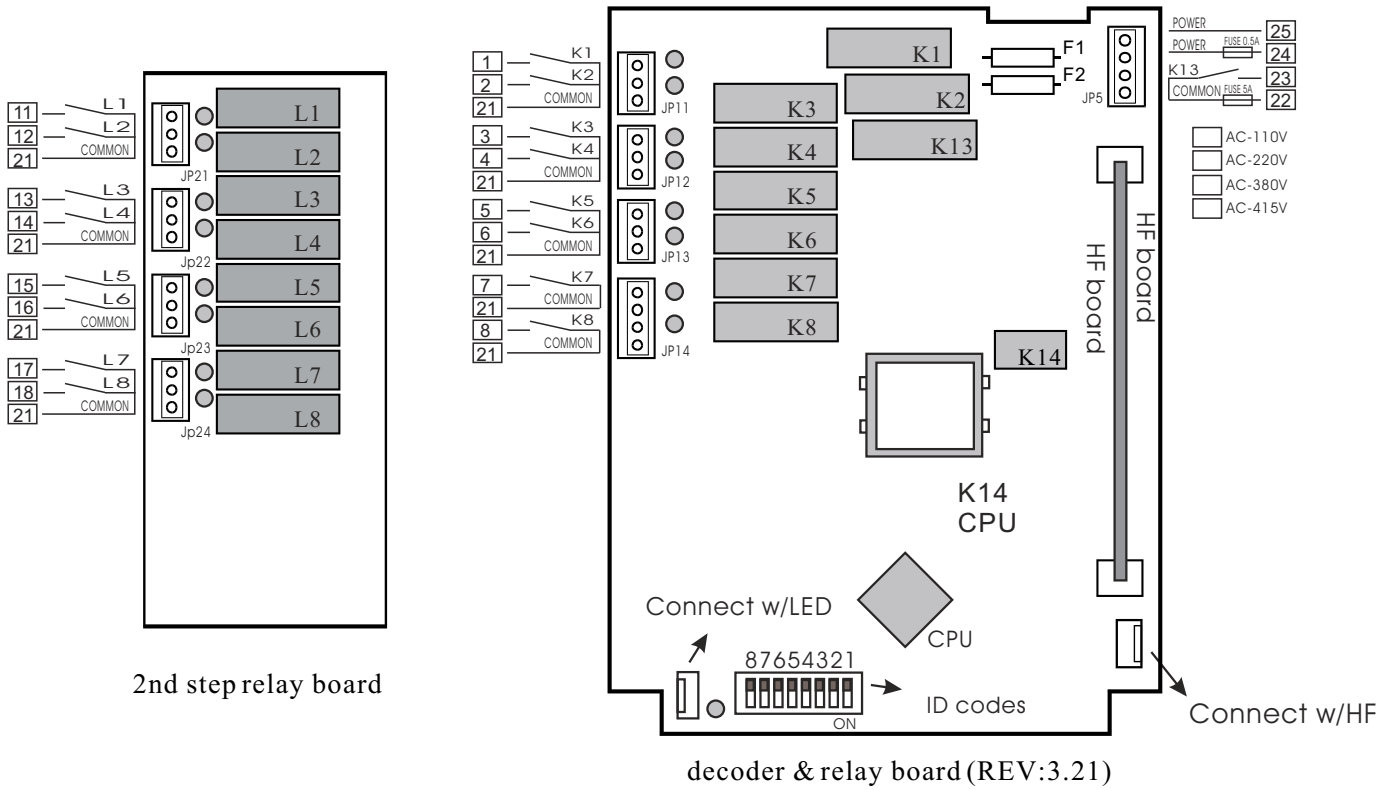
# Apollo System Installation Wiring Diagrams

**Remarks:**  
*For standard models only*  
*Custom-made is available on demand*



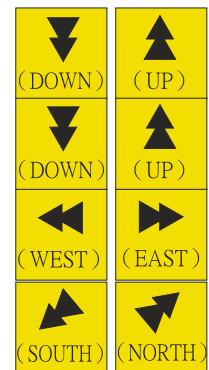
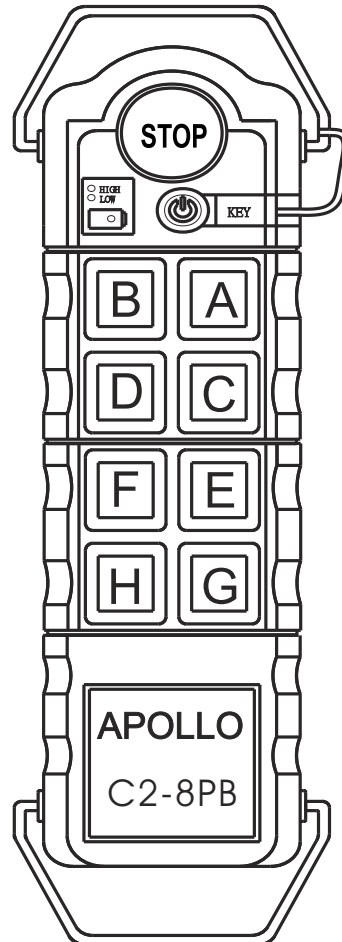
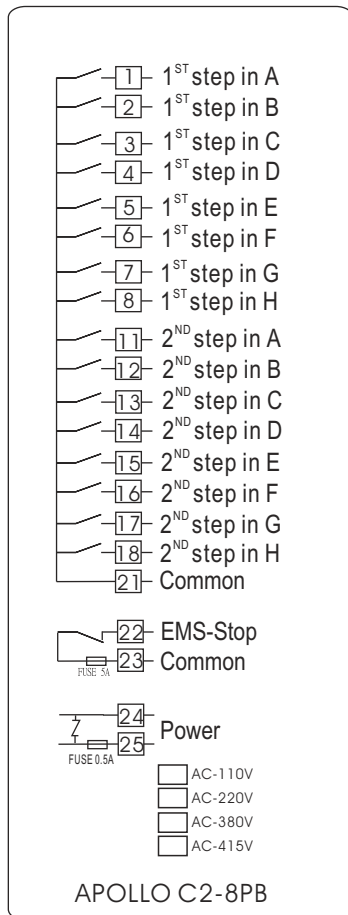
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## APOLLO C2-8PB Installation Wiring Diagram



F1 0.5A Power Fuse  
F2 5A Main Fuse

- K14 CPU
- K13 Main
- K1 1<sup>ST</sup> step in A
- K2 1<sup>ST</sup> step in B
- K3 1<sup>ST</sup> step in C
- K4 1<sup>ST</sup> step in D
- K5 1<sup>ST</sup> step in E
- K6 1<sup>ST</sup> step in F
- K7 1<sup>ST</sup> step in G
- K8 1<sup>ST</sup> step in H
- L1 2<sup>ND</sup> step in A
- L2 2<sup>ND</sup> step in B
- L3 2<sup>ND</sup> step in C
- L4 2<sup>ND</sup> step in D
- L5 2<sup>ND</sup> step in E
- L6 2<sup>ND</sup> step in F
- L7 2<sup>ND</sup> step in G
- L8 2<sup>ND</sup> step in H



Button-legend  
(custom-made on demand)



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## **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 labor. 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.**