



Safety · Reliability · Efficiency

## **User's Manual for Q5000 Series Remote Control**

# 1 Introduction of Product

NDF-Q series industrial remote control products are designed for the application of controlling industrial equipment, which is widely applied to control the various industrial equipment e.g. the various overhead cranes, tower cranes, conveyor belt, hoisting machinery and industrial equipment etc.

Each set of NDF-Q5000 series remote controller includes one host emitter and one host receiver, the standard spare parts include the emitter belt, emitter strap, two charging batteries, one charger, receiving antenna set, fixing set for receiver, spare fuse wire and operation manual.

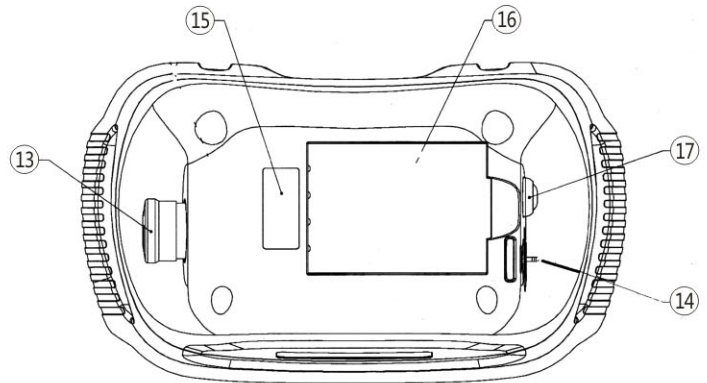
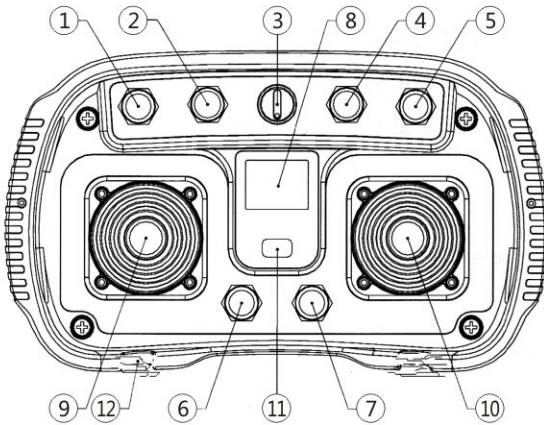
The main features of NDF-Q series are as below:

- ✧ Super strong safety design, over 4.3 billion kinds of non-repeated safety code, failure self-diagnosis and frequency automatic locking track etc.
- ✧ The extraordinary communication design, synchronous coding and decoding data transmission, having the functions of software eliminating interruption, debugging and calibration.
- ✧ There are a large number of programmable functions and applications of parameters, it is able to change the required function setting directly via computer e.g. programmable relay contact output and logarithmic response etc., which can meet the requirements of various controls for customers.
- ✧ Use the advanced processor contained the multi-digit Yuanhanming codes: having the rapid speed and high safety, as well as the highly precise and one hundred percent coding and decoding without mistake.
- ✧ There are two five-segment falling rocker head with pure proportional expression, and without the failure due to the poor contact of contact switch.
- ✧ Strong fiber plastic housing; robust and durable housing for emitter and receiver, which can prevent the damage caused by the strong cracking and occasional dropping.
- ✧ Super strong grade of water-proof and oil-proof ; the housing for emitter and receiver completely complies with the IP66/NEMA4 international standards.
- ✧ Thoughtful operation design: the users are able to freely select the adjustable belt or strap to facilitate the safe operation.
- ✧ The intelligent active safety function design: if the switch/rocker and the other components can't be started due to the failure, the reinforced watchdog can automatically stop the device to prevent the power supply from sudden countermeasure etc.
- ✧ Completely comply with the Article 15 European Safety Standard. of FCC.

## 2

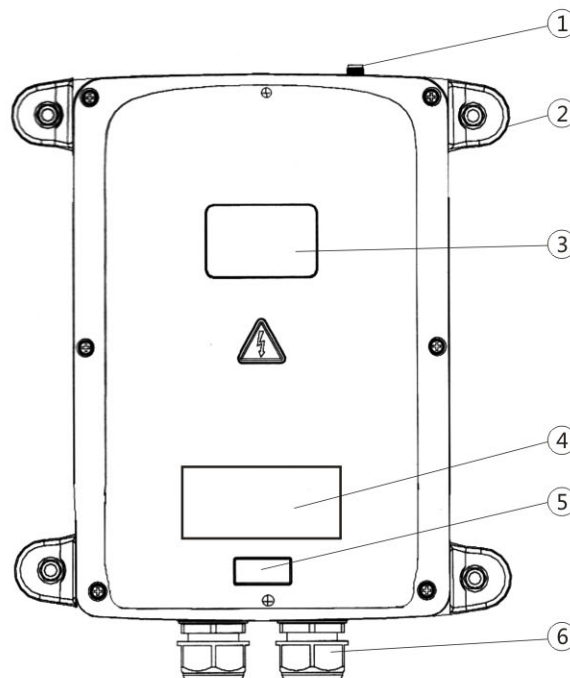
# Introduction of Product Diagram

### A. Emitter



- |                      |                                     |                               |
|----------------------|-------------------------------------|-------------------------------|
| 1. SW1 key or switch | 7. SW7 key                          | 13. Red emergency stop button |
| 2. SW2 key or switch | 8. Liquid crystal screen (optional) | 14. Power switch              |
| 3. SW3 key or switch | 9. Left shaker (L)                  | 15. System documents          |
| 4. SW4 key or switch | 10. Right shaker (R)                | 16. Battery                   |
| 5. SW5 key or switch | 11. Status indicator                | 17. START                     |
| 6. SW6 key           | 12. Belt/strap connection           |                               |

### B. Receiver

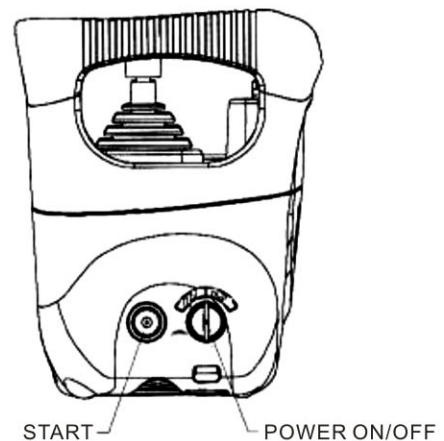
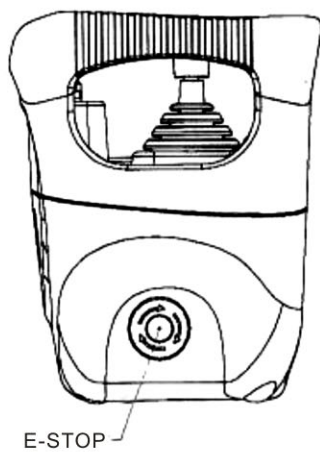


- |                               |                       |
|-------------------------------|-----------------------|
| 1. External antenna BNC joint | 5. System documents   |
| 2. Shock-proof mount          | 6. Cable locking head |
| 3. LOGO                       |                       |
| 4. Notice                     |                       |

## 3 Operation Procedure

### General operation procedures

1. Clockwise rotate the red emergency stop button E-STOP on the left of emitter, and the button will be bounced up.
2. Clockwise rotate the power switch POWER ON/OFF to the position of ON, the self-check program of remoter is started, LED indicator will flicker alternatively twice, that is the auto-check of remoter is in normal working condition, and the power of emitter is started.



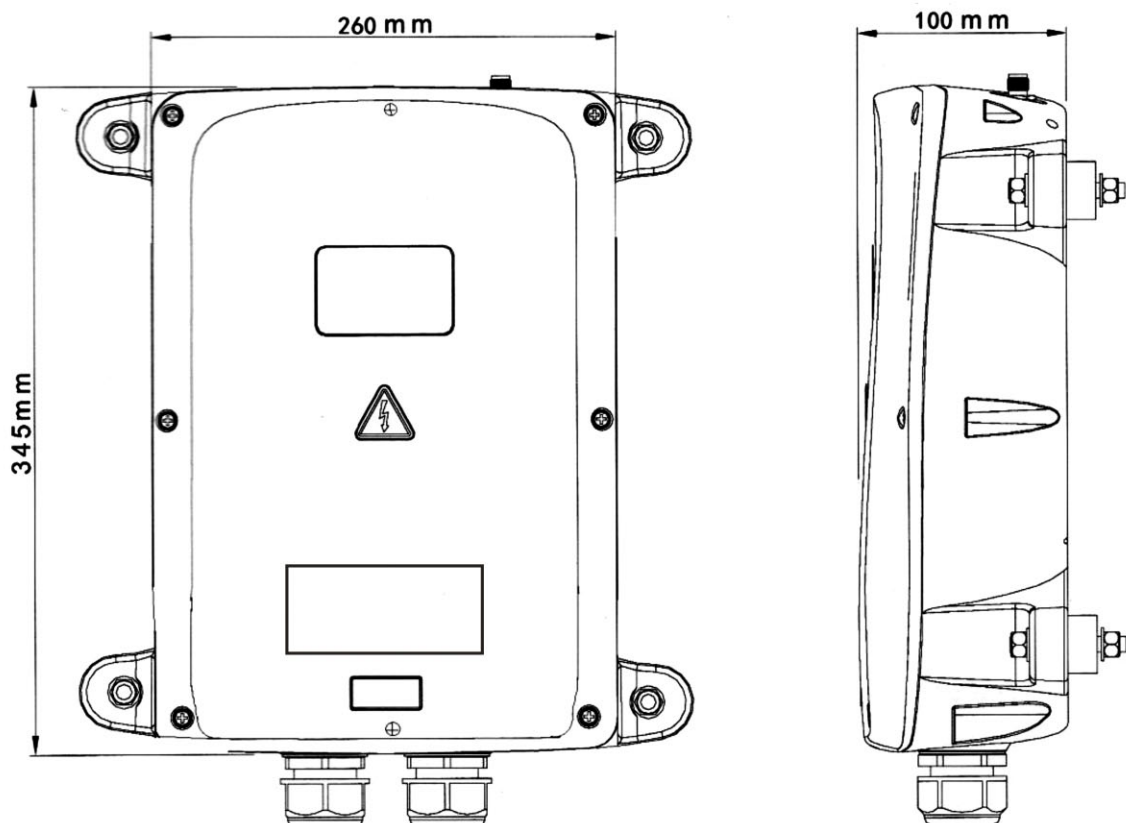
3. Press the green START starting key to start the host relay in the receiver.
4. After completing the above-mentioned operation procedures, it is able to operate the rocker and key of emitter to control the equipment.
5. If it is required to stop, it is able to immediately press the red emergency stop button, and then the receiver will cut off the host relay within the machine so as to stop the operation of equipment. If it is required to repeat the starting action, the procedures shall be same as the above-mentioned 1, 2 and 3.
6. If it is required to stop the machine, rotate the power switch to OFF position on the emitter after pressing the emergency button.

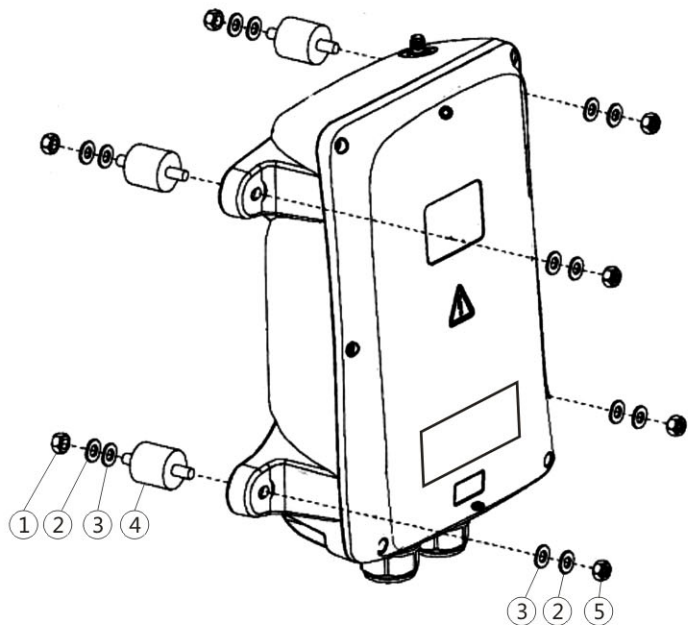
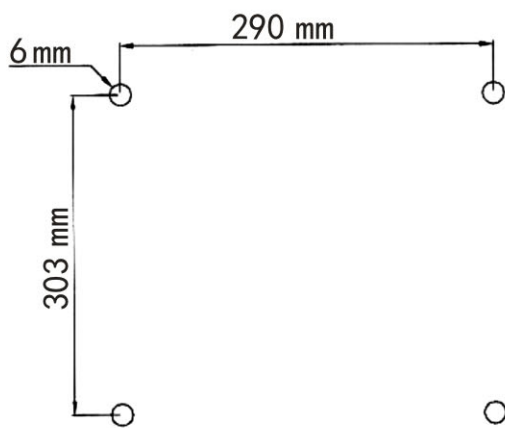
## 4 Installation of Receiver

### Notice of installation

1. When installing the receiver, it is required to turn off the main power of equipment to ensure the power is cut off, and prevent the electric shock.
2. The position for installing the receiver shall select the position where the electric spark and high-intensity magnetic field are avoided e.g. keep away from the facilities e.g. motor, high-power cables, frequency converter, high-voltage wiring and the other interference sources etc.
3. It is required to truly understand the power distribution of overhead cranes and the setting status of remoter function (including the relay output), avoiding the incorrect wiring connection.
4. If the receiver is required to install in the electric control cabinet, it is necessary to separately configure the extending antenna to avoid the signal shielding. The normal installation method is to fix the receiver on the top outside (or outside) the electric control cabinet, and then put the output controlling cables of receiver through the inside of electric control cabinet for the proper wiring connection.
5. It is required to ensure the housing to be fastened and locked when installing the receiver to avoid the loosening or dropping of receiver.
6. This series remoter includes 4 billion groups of safety codes, and the setting for each safety code is different when leaving the factory. Please confirm whether there are remoter with the same channel within the scope of 100m to avoid the same channel to influence each other.

### Dimension chart of installation





- ① Lock nut
- ② Spring pad
- ③ Flat washer
- ④ Shock absorber
- ⑤ Hexagon nut

## 5 Operation Manual for Battery of Emitter

Only use the special lithium battery pack and special charger provided by LCC for proper application. This lithium battery pack has the function of power detection and displays the working condition of power configuration with LED indicator. When the battery pack have full power, it is able to emit signals through pressing the key after starting the emitter normally, and the green lamp of emitter's LED indicator will flicker; when the power of battery pack is not sufficient after being used for a while, the red lamp of emitter's LED indicator will flicker, and it is required to stop work temporary at this moment (e.g. reduce the lifting articles to the ground) and replace with new battery rapidly. When charging, the battery pack will automatically access to the charging mode after plugging in the charger. The charging time is about four hours, the red lamp flickers when just being charged and the green lamp will last long time when being fully charged.

## 6 Notice

### General notice

1. Without the professionally trained personnel, it is unable to disassemble this machine, otherwise it is possible to cause damage and casualties.
2. This manual is only for reference for the using departments, please consult the dealers in terms of the specific technical issues.

3. This machine has been through the rigorous testing before delivery, it is not allowed to use in the circumstances of danger and possibility to cause the damage.
4. The main power shall be switched off after using this equipment, cut off the power of receiver, and put the key switch of emitter to the position of close.
5. The emitter shall be placed in the safe areas, any person shall not press or touch without permission to avoid the occurrence of accident.
6. The equipment shall have the main power relay, limit switch and the other safety facilities.
7. It is required to stop the operation in the circumstances of lightning stroke or interference.
8. It is required to ensure that the power of emitter's battery is full and the power voltage of receiver shall be normal.
9. It is required to turn off the main power of equipment and the power within receiver when installing or maintaining to avoid the electric shock.
10. The manufacturer will appropriately modify and upgrade this machine if necessary. Therefore, the content will be adjusted in accordance with the new machine, and the machine shall subject to change without prior notice.

#### Notice for Operators

1. The users shall receive the operation training of Q series to get familiar with the operation methods.
2. The operators shall be physically healthy and in good mental condition, as well as able to identify and judge the safety of operation, and have the qualification certificate of operation.
3. Q series reinforced emitter is able to resist the considerable cracking with the weather fastness, but the excessive or deliberate cracking and squeezing may also cause the damage.
4. The operators shall pay attention to the indicator on the emitter. If identifying the situation that the red lamp keeps flicking, and it is possible to have the occurrence of abnormality or failure, it is also possible that the power of battery has been consumed. It is required to stop the operation immediately and replace the new battery, and it is able to continue the operation after the lamp is indicated to be normal.
5. Once identifying the equipment is seriously interfered, it is required to stop the operation immediately.
6. If the remoter is not used for long term, it is required to take out the battery within the emitter.



## Simple Debugging Method for Emitter

Please check whether the emitter is in good working condition before using the remoter. If identifying it is unable to operate normally, it is able to carry out the simple lamp indication diagnosis and debugging in accordance with the following procedures. If it is still unable to work normally after making the following judgement, please notify the dealers.

After installing the battery in emitter, turn on the switch of power supply. If its emitter LED doesn't have any indicating status, and the emitter may have:

- |                                    |                                     |
|------------------------------------|-------------------------------------|
| 1. reverse installation of battery | 2. the battery is out of power      |
| 3. the battery is damaged          | 4. the dirt on the battery contact. |

After installing the battery in emitter, turning on the switch of power, pressing the starting key, if the LED of its emitter is in the status of red lamp flickering, the emitter may have:

- |   |   |
|---|---|
| 1. the power of battery is not sufficient | 2. the emergency button fails to be rotated to lift |
| 3. some key is broken                     | 4. the rocker is not at the zero position.          |

## 8 Warranty of Product

### Quality Guarantee

LCC ensures this product has been through the rigorous technical testing and complying with all technical indexes before leaving factory. It is able to use normally only the installation is correct.

### Warranty Period

This product shall enjoy one-year warranty period since the date of ex-factory sales. If within the warranty period, in terms of the non-human damages, LCC shall be responsible for the repair. As for any product requires maintenance, it is required to deliver to the service center designated by LCC for repair. This customer shall undertake the one-way transportation expense for the product to be delivered to the service center, and LCC shall undertake the return-trip expense within the warranty period to return this product.

### Excluded Matters

The above-mentioned scope of warranty doesn't include the consumable spare parts e.g. key, relay, fuse wire and battery etc. The incorrect installation of machine, improper operation, the force majeure, natural factors, insufficient maintenance, as well as the ignorance of operating environment and specification. The failure and damage etc. caused by the unauthorized change, incorrect operation or customized interface of clients.

### Remark

The above-mentioned warranty items shall not have the other description or hidden warranty items.

The repair provided by the warranty is the only compensation of clients, LCC shall not take any direct, indirect, special, accidental or causing-and-effecting responsibilities.

### Specification table

channel	:	315MHZ (80 group)
Channel interval	:	25KHz
Codec	:	microcomputer processor
Effective operating range	:	>100m
Hamming code	:	>4
Frequency control	:	Phase lock loop
Receiver sensitivity	:	-116dBm
Antenna matching impedance	:	50ohms
Reaction time	:	50mS
Transmission power	:	1.0mW
Waterproof standard	:	Ip66
Output contact	:	250V@5Amps
Transmitter voltage	:	7.4V
Receiver power consumption	:	7~20VA
Receiver supply voltage	:	AC/DC24-48V 110~460V@50/60Hz
Charger power consumption	:	0.3~5VA
Charger supply voltage	:	AC100~240V@50~60Hz
Operating temperature	:	-25℃~75℃
Transmitter size	:	247mm(long)×145mm(wide)×180mm(high)
Receiver size	:	345mm(long)×260mm(wide)×100mm(high)
Transmitter weight	:	1.48kg(Contain the battery)
Receiver weight	:	2.42kg