AUTOMATIC BOOM GATE

USER'S MANUAL

MODEL
DC535Y/DCZ535Y
DC655Y/DCZ655Y

WARNING!

ONLY QUALIFIED AND EXPERIENCED TECHNICIANS SHOULD ATTEMPT INSTALLATION OR SERVICE TO THIS UNIT, OTHERWISE, SERIOUS PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE MAY OCCUR.

PLEASE KEEP THESE INSTRUCTIONS FOR FURTHER REFERENCE.

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1. Important safety information

Carefully read and follow all safety precaution and warnings before attempting to install and use DC660-3(L, M, R) boom gate. Incorrect installation can lead to severe injury.

- The automatic boom gate should be installed by a qualified technician; otherwise, serious personal injury or property damage may occur.
- Children should not be allowed to play near or operate automatic boom gate.
- Before any job on the boom gate, cut out electrical power.
- Do not in any way modify the components of the automatic boom gate, otherwise serious personal injury or property damage may occur. We do not accept responsibility for damage or injury resulting from installing this boom gate.
- Notify the users that the boom gate is never to be operated unless it is in full view.
- Always keep people and objects away from the boom gate when it is operated.
- Keep remote controls away from children, to prevent the boom gate from being activated involuntarily.
- The distance between the end of the bar and the nearest objects should exceed 0.5m.
- Any changing of the bar by customer is not allowed. If you have any special requirements about the bar, please kindly contact a dealer.
- Under no condition should boom gate be used with bar or spring not attached.
- For your safety, withdraw the crank before switching the power back on.
- For service, call an experienced technician.
- Our company reserves the right to change the design and specification without prior notification.

2. Introduction

Please read the instructions carefully before proceeding. The automatic boom gate intended for use in parking area, commercial premises or apartment block access.

- Compact design, attractive appearance, safe and reliable performance.
- Self-locking at any position.
- A unique internal spring counterbalance mechanism aids the action of the boom gate.
- To ensure safety, the boom gate will reverse if it comes in contact with people or vehicle when closing, and will stop if jammed when opening.
- Manual operation in case of power failure.
- Terminals available to photocell, loop detector and alarm lamp.

3. Main technical parameters

Type	DC535Y/DCZ535Y	DC655Y/DCZ655Y
Opening time	3.5 seconds	5.5 seconds
Bar length	3m~5m (standard)	5m~6m (standard)
Power supply	Single-phase AC240V 50Hz	
Motor speed	1400r/min	
Motor output power	180W	
Duty cycle	40%	
Noise	≤62dB	
Measurement	360mm (L) x 230mm (W) x 1050mm (H)	
Environmental temperature	-20°C~+50°C	

4. Installation

Necessary Tools

The following tools may be necessary to install the automatic boom gate. You will need standard screwdrivers, an electric drill and spanners.

The entire configuration and dimension are shown in the diagram below.

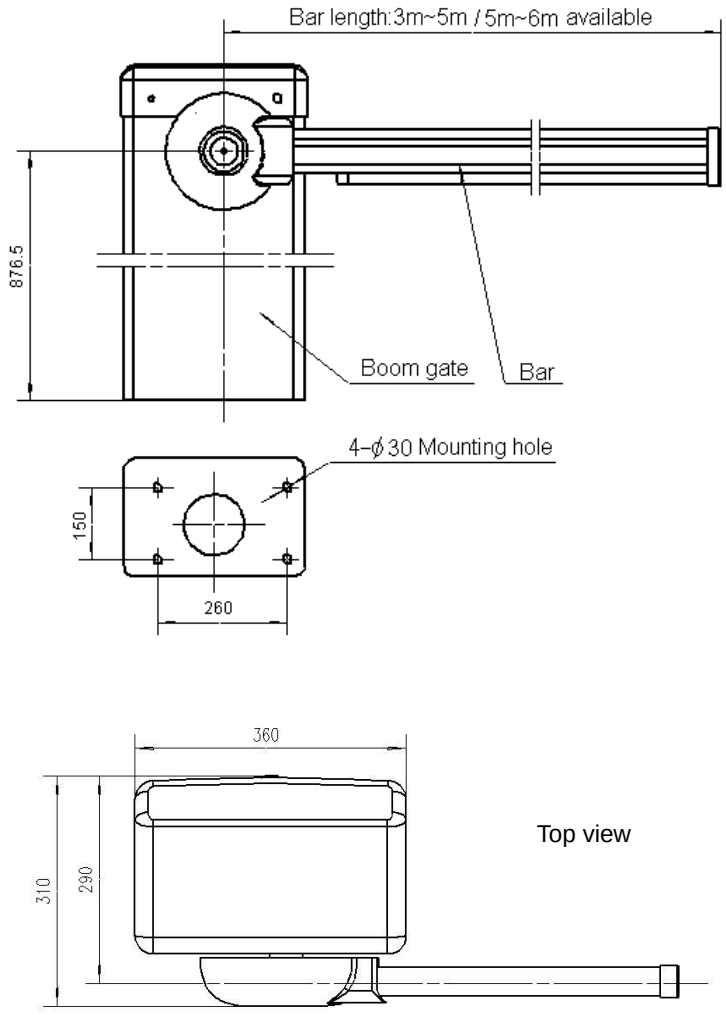
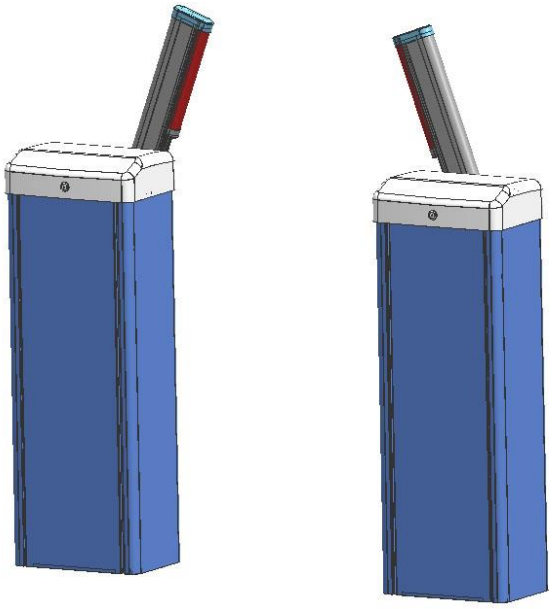


Fig.1

Right-hand boom gate (DC535Y, DC655Y) and left-hand boom gate (DCZ535Y, DCZ655Y)

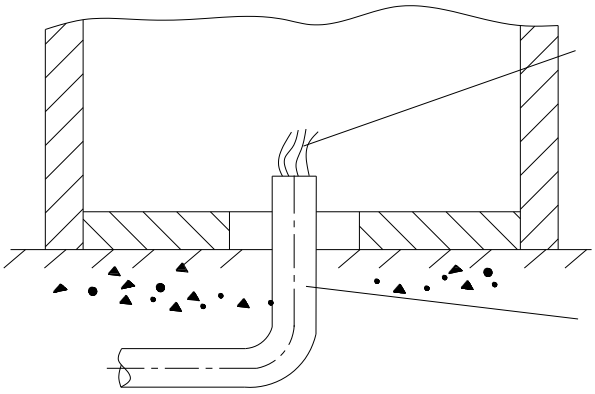


DC535Y, DC655Y DCZ535Y, DCZ655Y

Fig.2

Conduit

Make one input hole for electric wires. In order to protect the wires, conduits must be set into the concrete when it is poured. Wires within the conduit shall be located or protected so that no damage can result from contact with any rough or sharp part.



Wire
The power wire size should be more than 1.5mm^2.
The control wire size should be more than 0.5mm^2.

PVC conduit (the conduit size should be more than 12mm in diameter)
We advise you to use two conduits: one for main power wires, another one for control wires.
Always separate power wires from control wires.

Fig.3

Expansion bolt (see Fig.4)

- The boom gate requires a concrete pad in order to maintain proper stability. Place the boom gate on its concrete pad and check the boom gate orientation with regard to the roadway.
- Mark the base hole locations onto the cement with a pencil or similar.
- Then move the operator to the side and drill the 4 holes on the marks that you have just drawn on the concrete pad.
- Insert the (4) M12 wedge expansion bolts that are provided with the boom gate into the holes or you can use the (4) M12 bolts, these bolts must be set into the concrete when it is poured.

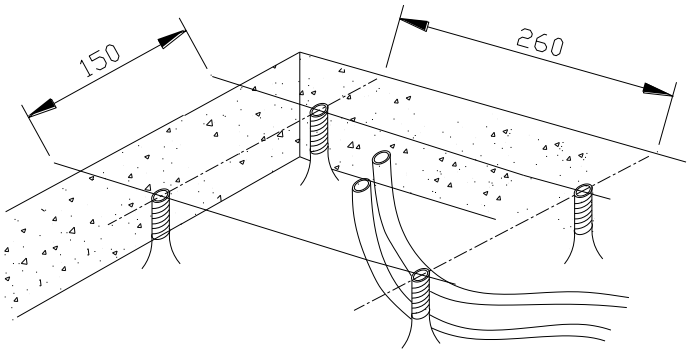


Fig.4

Boom gate (see Fig.5)

Place the boom gate back into position, mount the boom gate to the concrete pad with washers and nuts.

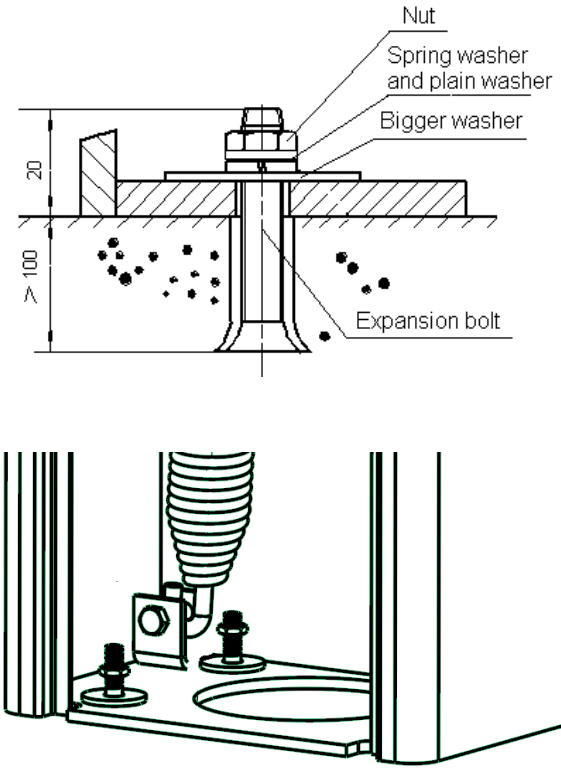


Fig.5

Bar (see Fig.6)

Mount the bar to the assembled cubicle and lock it with the four M10×16 socket head screws.

Mount the bar cover using the three M4×5 screws.

Manual operation (see Fig.6)

In case of power failure use crank to open or close boom gate manually, use the crank as follow:

- Shut off the main power of the boom gate. This safety measure is mandatory to avoid any risk of injury in case of accidental running of the motor.
- Insert the crank in the opening of the housing (protected by a cover).

- Turn the crank clockwise or counterclockwise.
- Withdraw the crank before switching the power back on.

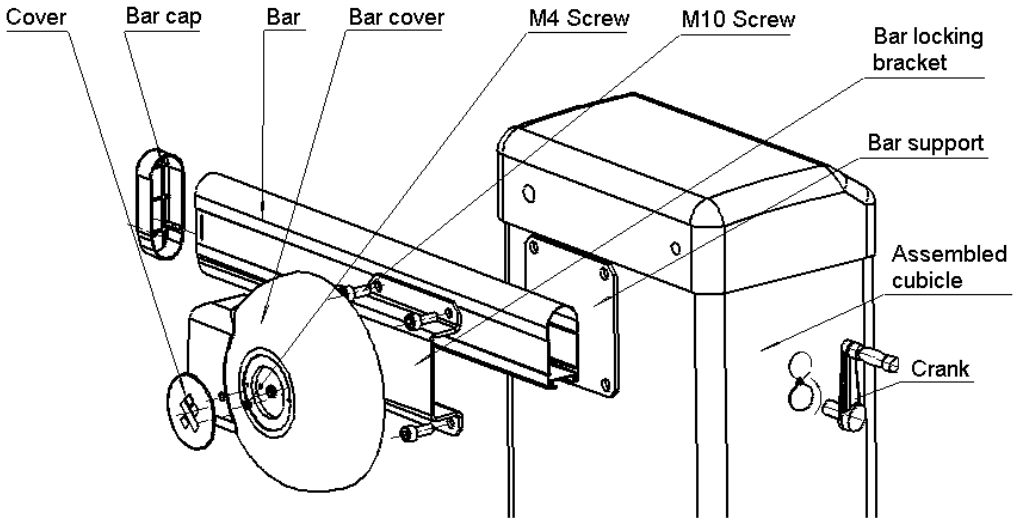


Fig.6

Limit switch (N.O.) see Fig.7

- The adjustable limit switches are used to stop the bar in the opened and closed positions.
- Loose the M4 screw of open limit cam, turn the open limit cam until the open limit switch light illuminated, then tighten the screws.
- Loose the M4 screw of close limit cam, turn the close limit cam until the close limit switch illuminated, then tighten the screws.
- After adjusting, you can open the bar then close the bar and observe whether the bar has successfully reached the opened (vertical) position and closed (horizontal) position. If the bar does not reach the opened position and closed position, you can repeat the adjusting process.

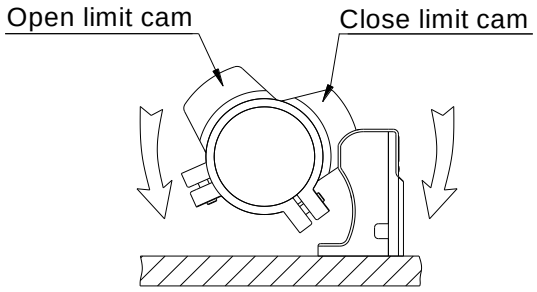


Fig.7

Balancing spring (see Fig.8)

Correct balancing is essential if boom gate is going to work properly. Rectify balancing spring only when the bar is in open position (i.e. the balancing spring is loose).

Four holes (ø15) on the driven lever. The boom gate is normally delivered in the first hole (DC655Y/DCZ655Y: suitable for bar length from 5m~6m) or the second hole (DC535Y/DCZ535Y: suitable for bar length from 4.5m~5m). If you need to change it to the third (3.5m~4.5m) or the fourth (3m~3.5m) hole proceed as follows:

- When the balancing spring is loose (the bar is in open position), undo the nuts, release the balancing spring by turning the spring adjusting rod clockwise.
- Connect the spring adapter to the third or the fourth hole of driven lever, tighten with pin and R pin.
- Connect the spring adjusting rod to the balancing spring and spring adapter by turning spring adjusting rod anti-clockwise. Tighten the spring adjusting rod to make the balancing spring for ideal condition of use.
- Fasten the two nuts.

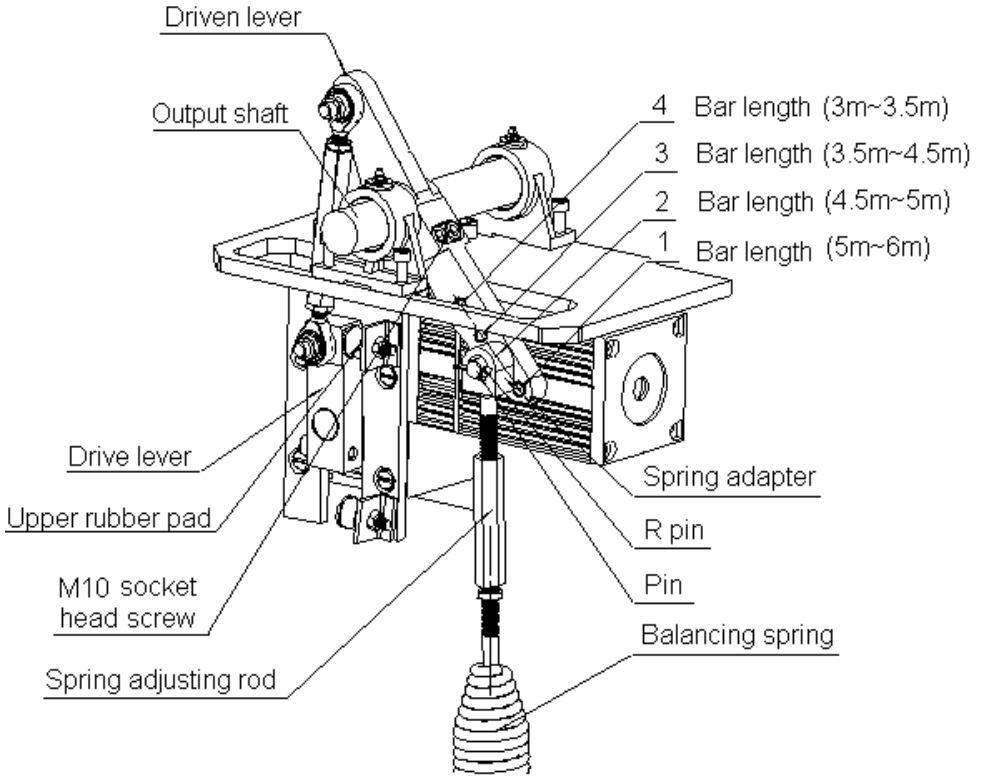


Fig.8

5. Electrical

Remote control

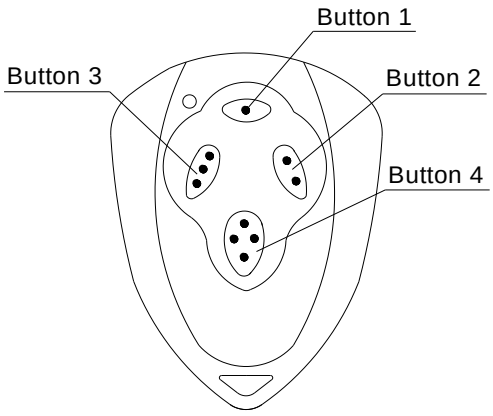


Fig.9

- **To add extra remote controls (Learning)**: Press the button 'AN' (see Fig.10 control board scheme No.13) on the control board, a beeper will be heard, then press the remote control button which you want to use, the beeper will ring again, press the same remote control button again, the beeper will ring at 1/2Hz frequency and then stop, the last ring is continuous. Then the learning process is finished.
  Up to 25 remote controls may be used.
- **Erase remote controls:** To erase all existing remote controls, press and hold 'AN' button, the beeper will ring, release the button once the beeper stops ringing. This indicates that all the remote controls have been erased completely.
- The remote control works in a single channel mode. With each press of the remote control button the bar will open, stop, close or stop cycle.

DIP-switch (SW)

Position	DIP-switch	Function
1	ON	Limit switch mode is NC.
	OFF	Limit switch mode is NO.
2	ON	Auto-close function is available.
	OFF	Auto-close function is shut off.
3	ON	Programming / In this position the control board is in programming condition, NOT USE condition.
	OFF	Normal / In this position the control board can be normally used.

- **Set the bar auto-close function**: (This feature can be selected to keep the bar stay open for some seconds before it automatically closes. The auto-close time can be adjusted to between 0 and 44 seconds.) Please turn on the second and the third DIP-switch (see Fig.10 control board scheme No.5 'SW') to ON position. Press the remote control button which has been programmed to open the bar, with the bar in vertical position, wait a few seconds according to your requirement

(the range is 0~44 sec.), this period of time is regarded as 'auto-close time'. close the bar by pressing the same button, after the bar stops at the horizontal position, return DIP-switch 3 to OFF position. Thus the auto-close function has been set.

- **Cancel auto-close function**: Please turn on the second and the third DIP-switch (see Fig.10 control board scheme No.5) to ON position. Press the remote control button to open the bar. When the bar stops at the vertical position, wait until the bar close automatically (45 sec.). After the bar stops at the horizontal position, return DIP-switch 3 to OFF position immediately. Thus the auto-close function has been canceled.

Note:

(1) If any button 1, 2, 3 has been set with auto-close function, then the other two buttons also have this function. Button 4 needs to be set independently.

(2) There are two different ways to cancel the auto-close function:(a) see **Cancel the auto-close function** section. (b) You also can turn off the second and the third DIP-switch to OFF position, the auto-close function will be shut off. The auto-close feature will not function.

Activities covered in this section

Tuning the auto-reverse safety function

- Rotate the 'Force Adj. VR1' knob (see Fig.10 control board scheme No.14) with a screwdriver. The resistance may be increased or decreased by rotating clockwise or counterclockwise.
- If the boom gate operates freely and can auto-reverse in the event of an obstruction during closing and stop in the event of an obstruction during opening, then the adjustment is completed.

Loop detector

- If loop detector detects vehicles during the bar closing, the bar will reopen immediately and stay open until the vehicles move out of the loop, after vehicles move out of the loop, the bar will continue to close.
- If loop detector detects vehicles when the bar stops at vertical or middle position, the bar will remain stop until vehicles move out of the loop. After vehicles move out of the loop, the bar will close.

  If loop detector detects vehicles when the bar stops at horizontal position, the bar will not move.
- The bar will keep opening if loop detector detects vehicles during opening. After vehicles pass through the loop, the bar will close.

Infrared photocell

- If infrared beam is interrupted during closing, the bar will reopen immediately.

Limit switch

- The switch is used to accurately stop the bar in the vertical and horizontal positions.
- If the bar stops at opened position (vertical) when the switch is reached, the bar will not move if you press '▲' (Open) button of button switch.
- If the bar stops at closed position (horizontal) when the switch is reached, the bar will not move if you press '▼'(Close) button of button switch.

Open priority

- The bar will return to open if press '▲' (Open) button of external button switch during closing.

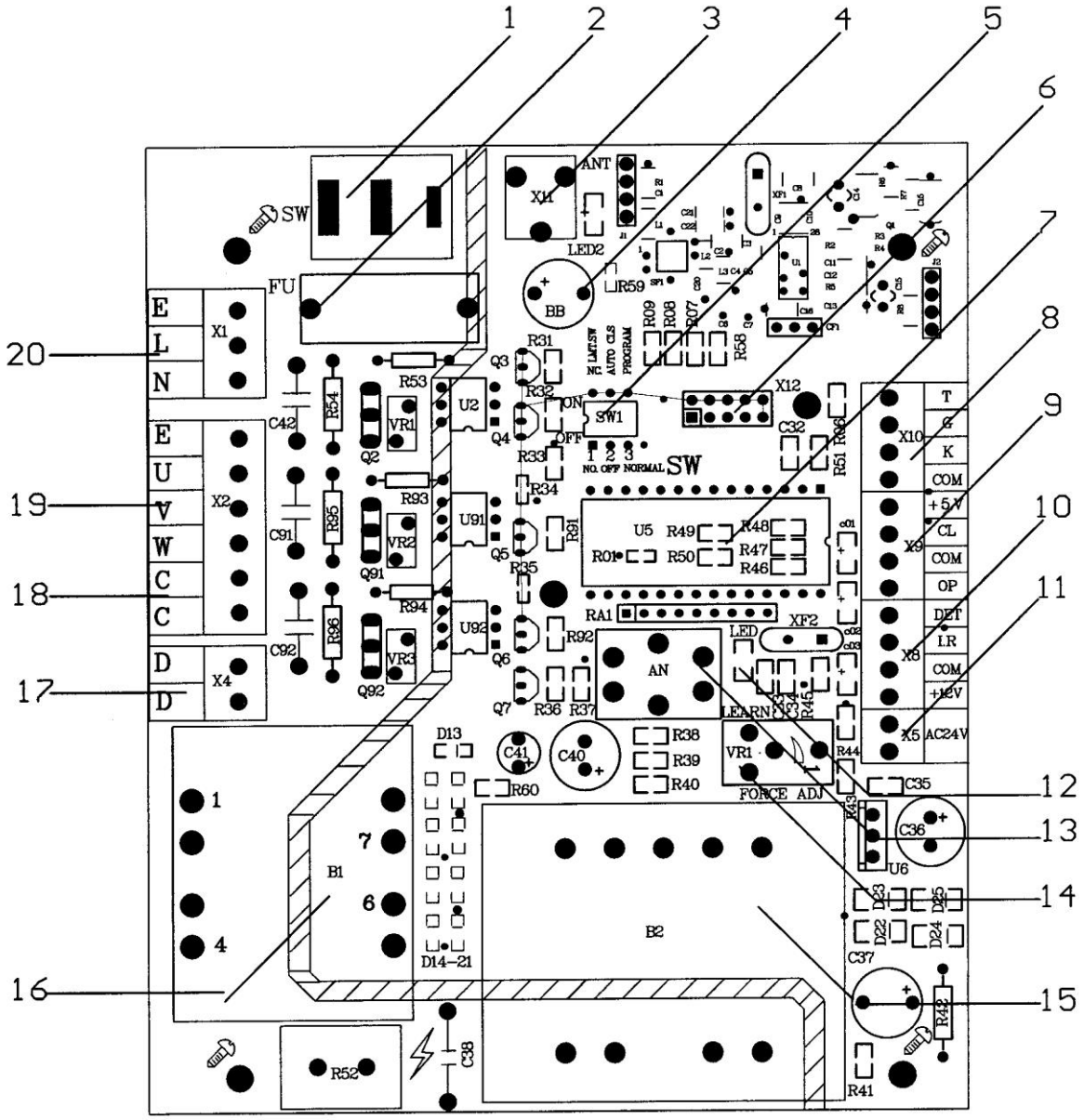
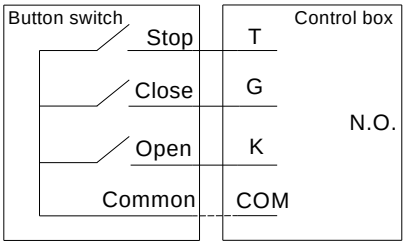


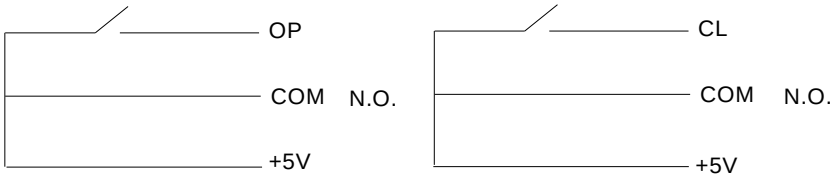
Fig.10 control board scheme

Wiring Notes of Control Board (See Fig.10)

1. Power Switch: ON/OFF
2. Fuse: 5A, Ø5x20
3. Antenna: ANT
4. Beeper: DC12V
5. DIP-switch
6. Memory Card: 93C66
7. MCU: PIC16C57C
8. External button Switch: T (Stop), G (Close), K (Open), COM (CO)

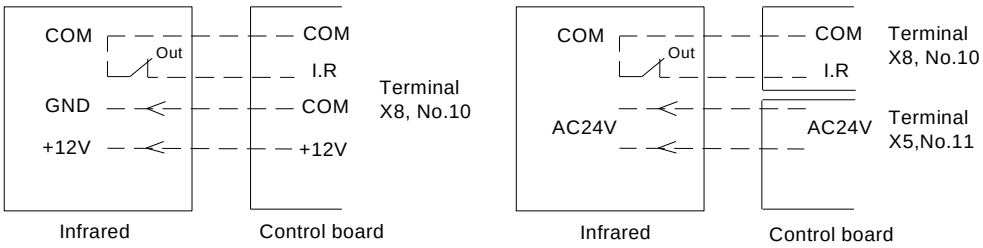


9. Limit switch: CL (Close), COM (Com), OP (Open), +5V(DC +5V)

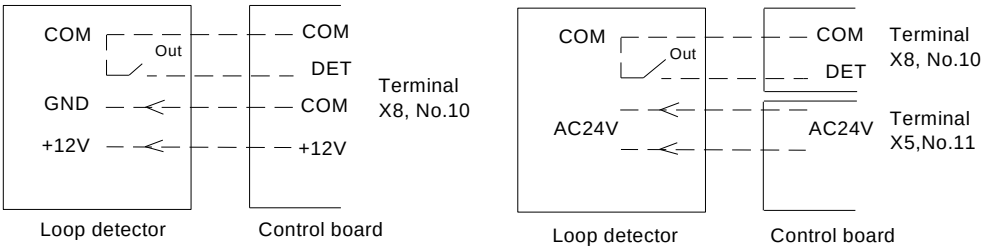


Limit switch (open)　　Limit switch (close)

10. Output power supply: +12V (DC +12V), COM (GND, CO)，DET (Loop detector, normally open contact), I.R. (Infrared, normally close contact)



Infrared with DC input　　Infrared with AC input



Loop detector with DC input　　Loop detector with AC input

11. Output Power Supply: AC24V
12. Power Indicator: LED
13. Learn Button (AN): LEARN
14. Force Adjustor: Clockwise +, Anticlockwise –

15. Transformer: 220V/12Vx2
16. Sampling Transformer: 110V/ 8.8V 4W
17. Alarm Lamp: AC220V
18. Motor Capacitor: 10 μ F 450V AC
19. Motor: U (Com), V (Positive direction), W (Opposite Direction), E (Earth)
20. Power Input: E (Earth), L (Live), N (Neutral) AC240V

6. Maintenance

- Every 3 months check and add grease (2#) regularly in two grease cups. There should be no water and impurity in grease cup.
- Every 6 months check and add oil. Use WA220 oil only. To avoid high pressure in the reducer casing, please loose the oil screw a little (one or two turns) before using.

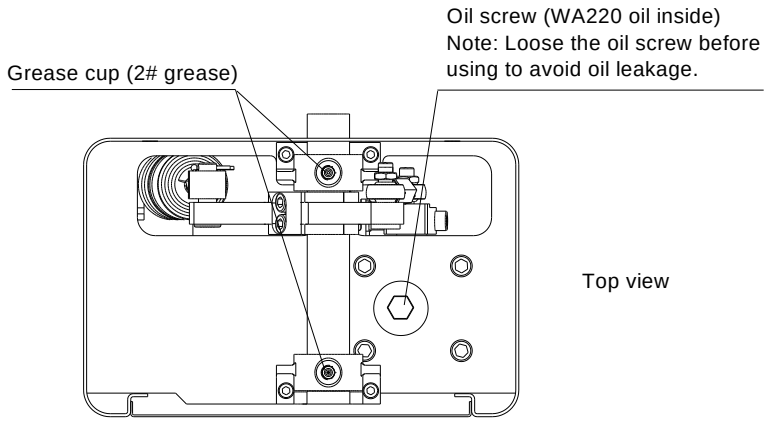


Fig.11

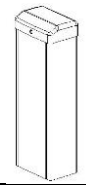
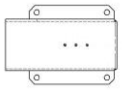
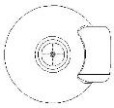
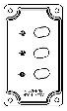
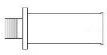
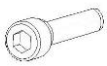
- Check and tighten the two M10 socket head screws in the driven lever.
- Check if all screws and nuts have been tightened firmly except oil screw as shown in Fig.11.
- Check if all wires are firmly connected to their respective terminal blocks.
- Make sure the bar is correctly fixed.
- Check the general state of the balancing spring.
- Keep boom gate clean at all times.

7. Troubleshooting

No.	Trouble	Possible causes	Solutions
1	The bar fails to close or open fully.	Limit switch	Re-adjust the limit switch.
2	The bar opens too slowly.	Balancing spring	Adjust the balancing spring rod or replace the balancing spring.
3	The indicator light on the control box does not light.	Fuse blown	Replace fuse
4	The remote control operating distance is too short or not far enough.	Battery level may be low.	Replace the battery inside of the transmitter or try another transmitter.
5	Red indicator light of the transmitter does not light.	Poor contacted.	Replace the transmitter.

8. Packing list

Make sure that all parts are included before using. Refer to packing list. If any parts appear to be missing, contact a dealer.

No.	Item		Quantity
1	Assembled cubicle		1
2	Bar locking bracket		1
3	Bar cover		1
4	Cover		1
5	Crank		1
6	Transmitter		2
7	Button switch(optional accessory)		1
8	Expansion bolt M12		4
9	M10×16 Screw for mounting bar		4
10	M4×5 Screw for mounting bar cover		3
11	Bigger washer		4
12	Key		2
13	User' manual		1