CartPoland®
Polski Producent Kart Plastikowych

Manual
Bollard

https://www.bramkiobrotowe.eu/ I E-MAIL: office@cartpoland.pl I PHONE +48 25 758 76 43

Preface

- **This manual includes three parts, installation, wiring diagram and configurations.**
- **This manual is suitable for L01~L03, including the customized model.**
- **If model is L05, just refer to the installation.**

Part I: Bollard Installation

1. Digging the foundation pit

1.1 Detect whether the underground is suitable for excavation, whether there are underground cables, water pipes, sewers and other obstacles, and make corresponding adjustments. According to the site conditions, determine the location of the foundation pit and determine the drainage type.

1.2 Dig the foundation pit(length is customized*width 80~100cm*depth 140cm).

The foundation pit is 20~30cm deeper than the pre-embedded depth of the bollard. For example, the pre-embedded depth of bollard is 110cm, and the foundation pit depth is 130~140cm.

1.3 drainage:

a) According to the site situation, dig a small reservoir next to the installation location, and put a submersible pump in the pool to automatically pump water to the green belt/sewer/river, etc. The reservoir can be replaced by a large-diameter pipe (red circle in the right picture). Insert the pipe vertically into the corresponding position. The bottom needs to be slightly lower than the drain, and the bottom should be smoothed with cement.

b) Directly connect the drain to the sewer (pay attention to prevent reverse flow).

2. Bottom hardening

2.1. After digging the foundation pit, harden the bottom layer, lay a 20cm gravel sub-layer at the bottom of the foundation, and compact it.

2.2 Lay another layer of concrete, thickness is 10cm, and pave it.

2.3 After the concrete is completely cured, put in the bollard. This step can prevent the bollard from sinking.

2.4 The distance between the bollards is 0.5~1.5 meters, and exact distance is based on project.

3. Bollard drainage

3.1 Put the bollard into the pit, align and calibrate the horizontal position.

3.2 Connect the drainage pipe, use φ50 PVC pipe to connect the drain(bollard) to the pre-prepared reservoir, and place a submersible pump in the reservoir for automatic pumping.

4. Partial backfill

4.1 Fix the bollard with an appropriate amount of sand and stones to ensure that the position is correct.

If it is possible, steel bars can be welded for reinforcement, as the red arrow in the left picture.

4.2 Backfill the original soil or pour C40 concrete to 30cm from the ground to facilitate subsequent wiring, threading pipes and road restoration.

5. Wiring and threading pipe

5.1 Extend the bollard cables, the connection must be waterproofed, cross-wiring is prohibited, and the other end of the cable should be marked for identification.

5.2 Pre-embed the threading pipe according to the outlet. The diameter of the main pipe is determined by the quantity of the bollards.

5.3 Open the upper cover of the bollard and reserve 1~3 meters of cable for future maintenance, as the red arrow in the left picture.

5.4 Necessary cable for a bollard, 3*2.0~2.5 one unit, 2*1.0~1.5 two units.

5.5 After wiring is finished, test the bollards. If test is OK, backfill.

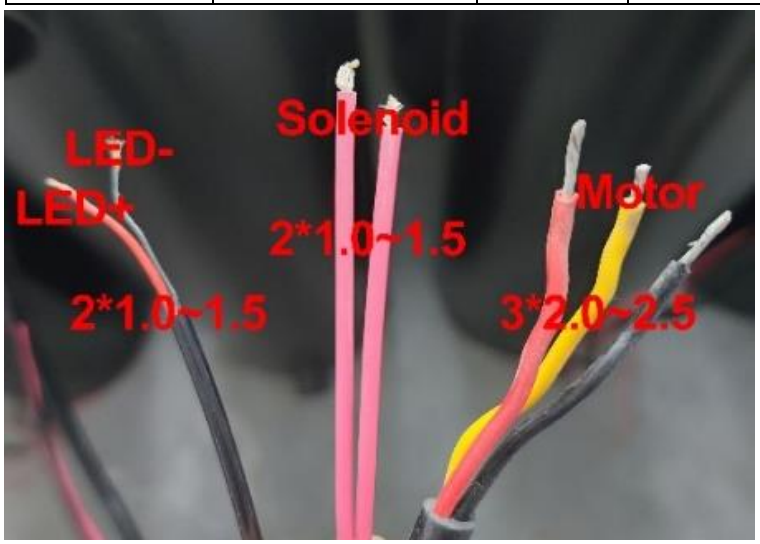
6. Road surface restoration

6.1 Restore the road surface.

Part II: Wiring Diagram

7.Basic wires

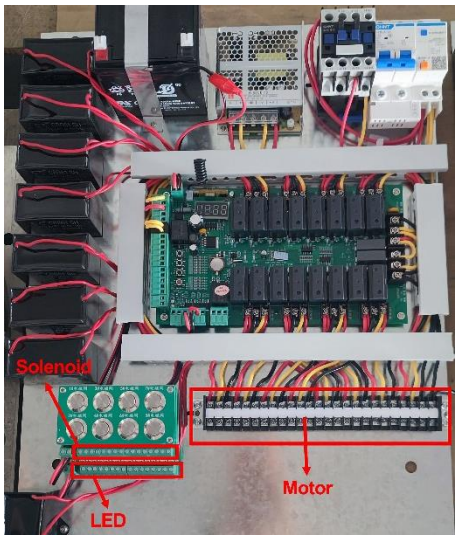
Wire	Specification	Color	Remarks
LED+	1.0~1.5	Red	Power supply,positive
LED-	1.0~1.5	Black	Power supply,negative
Solenoid	1.0~1.5	Pink	Power supply,no positive nor negative
Motor	2.0~2.5	Red	Rising
	2.0~2.5	Yellow	Falling
	2.0~2.5	Black	Common

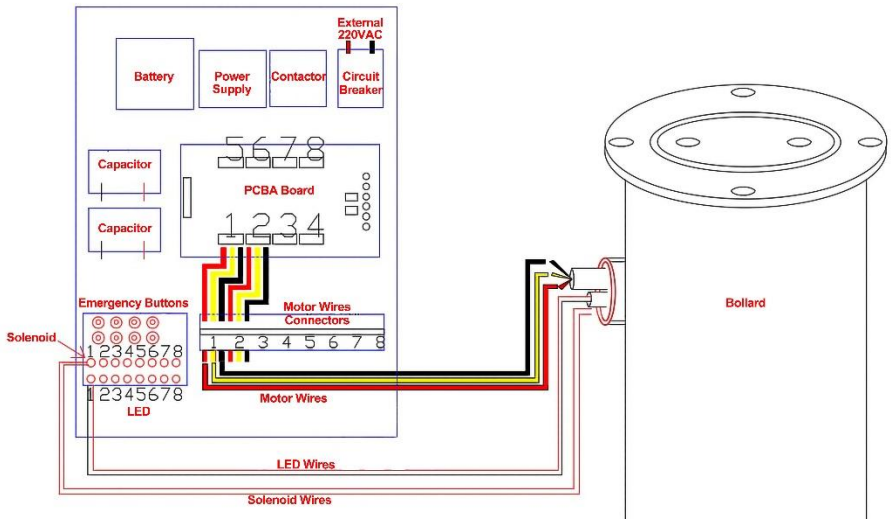


The connection must be waterproofed, cross-wiring is prohibited, and the other end of the wire should be marked for identification.

8.Wiring diagram

8.1 Overview





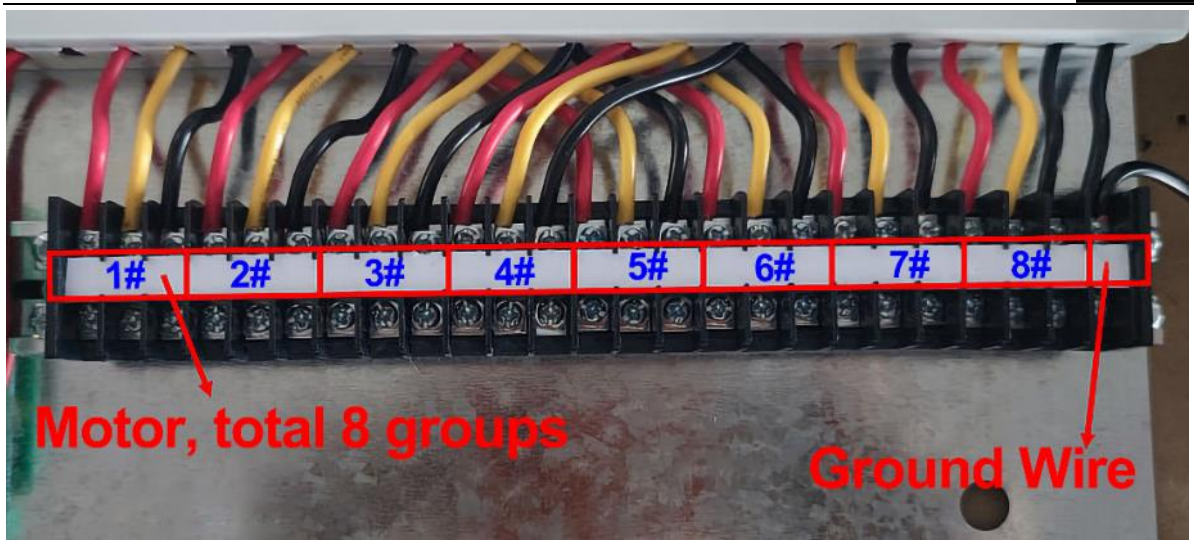
8.2 LED and solenoid

Connectors	Positive	Negative	Remarks
LED	Left	Right	
Solenoid			no positive nor negative

In the following picture, the 8 buttons are for emergency. Push each button, the corresponding bollard can fall.

8.3 Motor

Color	Direction	Remarks
Red	Rising	
Yellow	Falling	
Black	Common	



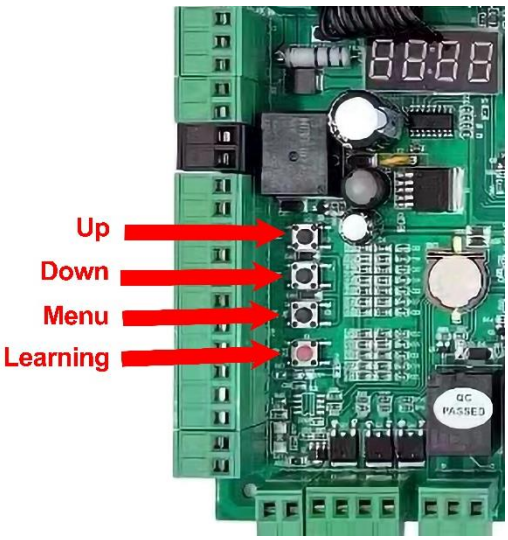
8.4 Remarks

8.4.1 Each control unit(control box) can control max 8 bollards at same time.

8.4.2 Each remote control can control max 8 bollards at same time.

Part III: Configurations

9.Configurations



9.1 4 buttons

On the PCBA board, there are 4 buttons on the board, “Up”, ”Down”, ”Menu” and “Learning”.

9.1.1 Up, 1) select the menu above, 2) value +1.

9.1.2 Down, 1) select the menu below, 2) value-1.

9.1.3 Menu, 1) during standby, press this button for a while to enter the system menu.

2) select a detailed menu to configure.

3) after configuration, save the value and return to system menu.

If there is no operation within 5 seconds, the menu will return to standby automatically.

9.1.4 Learning, remote control learning.

9.2 configurations

Menu	Function	Range	Default	Remarks
F-01	1st bollard, rise and fall time	10~99	4 seconds	"Up" and "Down" to change the time, and time range is 0.1~9.9 seconds. For example, value is 40, actual time = 40*100ms = 4000ms=4 seconds
F-02	2nd bollard, rise and fall time			
F-03	3rd bollard, rise and fall time			
F-04	4th bollard, rise and fall time			
F-05	5th bollard, rise and fall time			
F-06	6th bollard, rise and fall time			
F-07	7th bollard, rise and fall time			
F-08	8th bollard, rise and fall time			
F-09	remote control, control options	H00~H05	H01	1) H-00, one row of remote control buttons to control 1 bollard. 2) H-01, one row to control 2 bollards. 3) H-02, second row to control 1st~4th bollards, 4th row to control 5th~8th bollards. 4) H-03, 4th row to control all 8 bollards. 5) H-04,value is 4, menu is F-20~F-23,all 8 bollards can be controlled separately. 6) H-05, 3 buttons remote control.
F-10	LED, working and flashing	LED1~LED4(working) H-01~H-10(flashing)	LED1, H02	1) LED1, a) any bollard, during rising or falling, the RGB lights are flashing. After rising is done, RGB lights are always on. b) all bollards, when falling is done, RGB are all out. 2) LED2, a) any bollard, during rising or falling, the RGB lights are flashing. b) all bollards, after rising is done, red light is flashing, GB are both out. c) all bollards, after falling is done, green light is flashing, RB are both out. 3) LED3, a) any bollard, during rising or falling, the RGB lights are flashing. b) all bollards, after rising is done, red light is always on, GB are both out. c) all bollards, after falling is done, green light is always on, RB are both out. 4) LED4, RGB are always flashing.
F-11	485 address	1~99	1	485 communication address
F-12	aging test			1) Value is 0000, no automatic test. 2) Other value, time interval between each test

				cycle. 3) During test, press “Menu” to quit the test.
F-13	time			
F-14	schedule a time to open and close the LED lights			1) OFF, close all lights. 2) ON, open all lights. 3) C-ON, schedule a time to open and close lights, “On” for open and “Off” for close.
F-15	during rising, increase pressure	0.1~9.0 seconds	1.5 seconds	1) On, active this function. 2) Off, disable this function.
F-16	increase pressure, cycle time	1~99		Value is 1, time interval is 10 minutes. Value is 2, time interval is 20 minutes. Value is 3, time interval is 30 minutes. Etc.
F-17	delay time	0~99	10	When external relay signal detects a passing vehicle, after a time interval, the bollard will rise. Value is 10, time interval is 1 seconds. etc.
F-18	fleet function		CDOF	1) CDOF, disable this function. 2) CDON, active this function.
F-19	not available			
F-20	remote control, 1st row	1~8	a1~a3	control m~n group bolllards, and m<n.
F-21	remote control, 2nd row	1~8	b3~b6	
F-22	remote control, 3rd row	1~8	c6~c8	
F-23	remote control, 4th row	1~8	d1~d8	
F-24	relay signal, output	p-00~p-05	p-05	p-00, all bollards, falling is done, output signal. p-01, all bollards, rising is done, output signal. p-02, during rising, output signal. p-03, during falling, output signal. p-04, during rising and falling, output signal. p-05, during rising and falling, with contactor, delayed output signal.
F-25	remote control	L-01, OFF	L-01	L-01, active remote control OFF, disable remote control
F-26	remote control, rising, delay	0~240	0	Prevent false triggering. The larger the value, the longer the delay.
F-27	software version and restore			Press the “Menu” to display the version. Press the “Menu” again to display the “C—“. Press the “Menu” to restore.
F-28	Exit menu			Exit the menu, or automatically exit if no button operation within 5 seconds.

9.3 remote control

9.3.1 Learning

a) Press the learning button(the red button) on the PCBA board about 2 seconds, the “LERN” will appear on the screen(Nixie tube).

b) Press any button of the remote control to continuously send signals, and the board will have corresponding actions after successful learning.

Note: If the board does not receive the signals within 6 seconds, it will automatically quit the learning.

9.3.2 Quit learning

a) Press the learning button about 9 seconds, the indicator light goes out (E--- appear on the screen), and the quitting is done.