

Automatic Hydraulic Bollard Manual



Hangzhou Bollard-Security Equipment Co., Ltd (BS)

Safety

The hydraulic bollard you choose contains a wide range of mechanical and electronic components, and any negligence in assembly or operation can threaten your safety.

Warm

Any individual or organization that sells or installs this product should assume the corresponding safety responsibility, and also observe the following:

Any non-professionals cannot install, dismantle or maintain bollard. We will not take any responsibility for any risk or danger.

This manual is for reference; subject to real product. Any revision may change without any notice. We reserve the right of final explanation.

1 System Brief

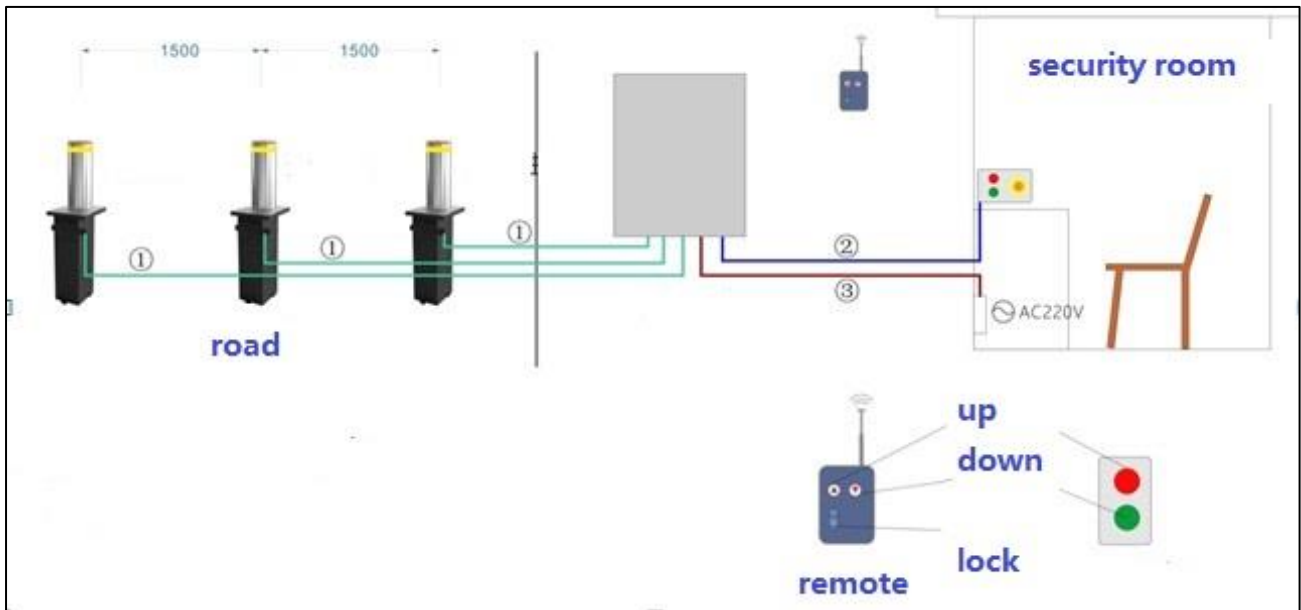
1.1 Brief

Automatic hydraulic bollard is installed for entry/exit of lane of motor vehicles and any place requiring access controlling.

It can be used for park, Pedestrian Street, government, prison, airport...



1.2 Composition



Bollard : Blocking cars. 1 piece or several pieces are for selection based on your project. Wire of bollard is corresponding to wire of slave board of cabinet.

Control system (cabinet) : It receives signal and controls bollard raise and fall. It includes main bollard, slave board and other electronic parts.

Push button (additional) : Bollards raise and fall by button.

Remote: control bollard in 15-30 meters.

1.3 Feature.

Make car lane and pedestrian lane separately; distance of bollard is about 0.8-1.5 meters.

Steel and stainless steel material are for selection.

Several controlling way- remote and push button (additional)...

Working with loop, traffic light, card reader system....

1.4 Model

H---hydraulic S---stainless steel O---steel

A---diameter of cylinder B---blocking height

E.g. DBO-220H4-900; hydraulic bollard; 220mm diameter; 900mm height, SS304

A		
Diameter of cylinder (mm)	220	275
B		
Blocking height(mm)	750	900

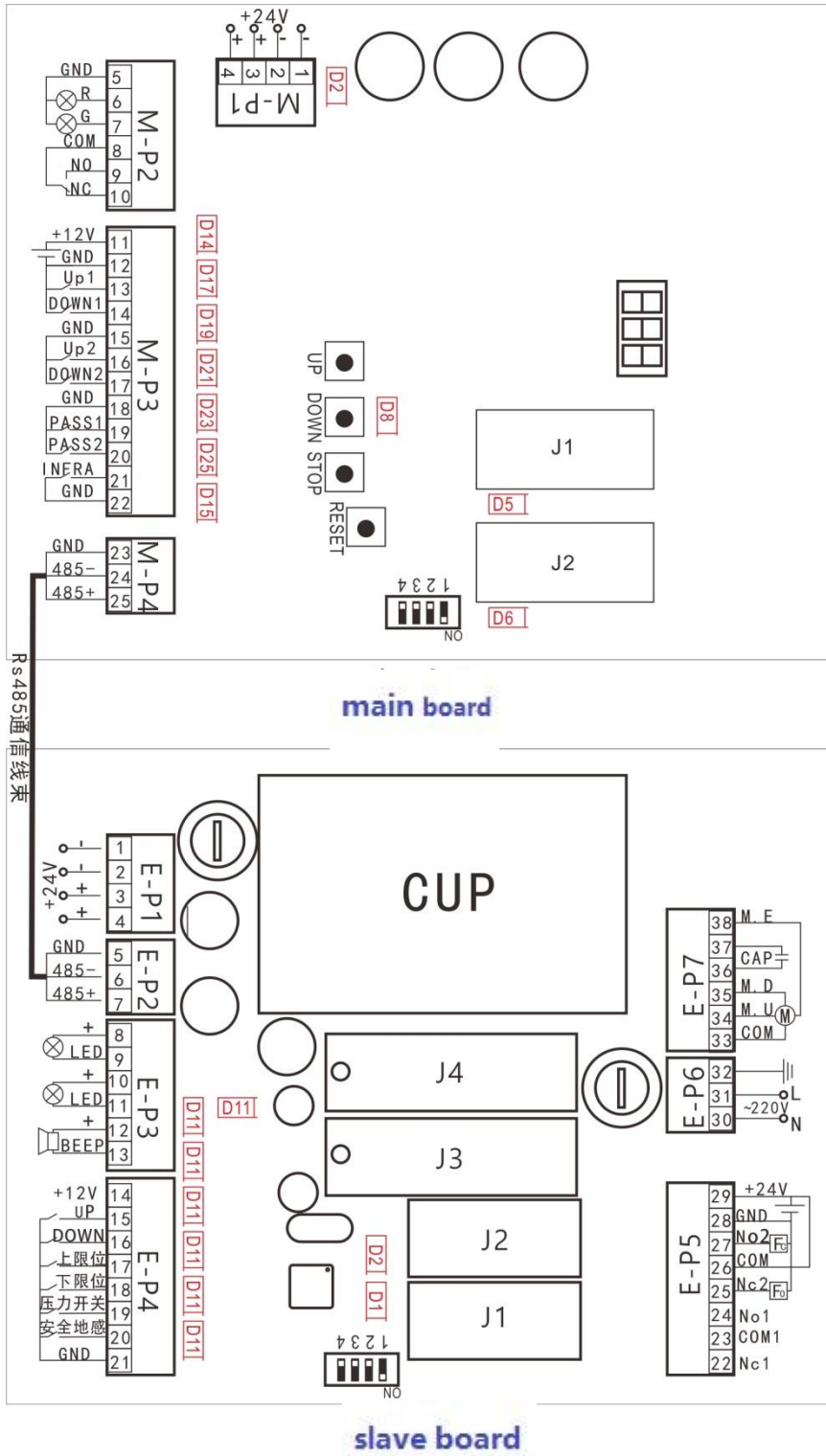
2 Product brief

2.1 Technical data

weight (Kg)	116	128	141	146	162	178
Diameter of cylinder	220	220	220	275	275	275
Blocking height	600	750	900	600	750	900
Height of outer cylinder (mm)	837	987	1137	837	987	1137
Raising speed	10~20cm/s					
Falling speed	20~40cm/s					
Impact resistance (J)	250,000			300,000		
lifting (Kg)	95~157	90~152	86~148	163~213	157~207	151~201
thickness	Steel	6 mm	6mm	6 mm	6 mm	6mm
	SS304	6 mm	6 mm	6 mm	6 mm	6 mm
Controlling way	Embedded hydraulic pump					
Power	AC 220V hydraulic pump					
Material	Steel, SS304 or SS316 (selection)					
Surface Treatment	Steel-powder coating; SS304 and SS316- polished					

Power failure	When power failure, fall automatically (default). Or keep the original status before outage (for selection)		
Input power	220V , 550W		
Working frequency	High; 2 million times; 2,000 times per day (depends on installation environment, using environment, maintenance...)		
IP rate	IP67		
Working temperature	-30~70°C (low temperature: heating rod for selection)		
Control cabinet	L (Length) x W(width)x H(height)	material	Number of bollard
	Mounted on the wall 320 x160x400	GW plastic 120°C	1
	Mounted on the wall 633x130 x733	A3 steel	10-N
	Standing. 900 X300X1020	A3 steel	20-N
	N=group number (1 or more bollards raise and fall together as a group)		

2.2 Control board



Main board					
Terminal number	Port number	function	Description		
M-P1	1	VIN-	DC24V power input	Power input	
	2	VIN-			
	3	VIN+			
	4	VIN+			
M-P2	5	GND	Ground	Notice: terminal for traffic light is closed. If needed, please inform before placing the order.	
	6	TL.R	Red light		
	7	TL.G	Green light		
	8	OC.COM	Common		
	9	OC.NC	Normal open		
	10	OC.NO	Normal closed		
M-P3	11	+12V	12Vpower output	Power for Control module	
	12	GND			
	13	UP.1	The 1 st raise and fall	Separated 2 groups of port input. Relay signal (push button, remote···) is available.	
	14	DOWN.1			
	15	GND			
	16	UP.2	The 2 nd raise ad fall		
	17	DOWN.2			
	18	GND	Loop detector		Direction of detector is not limited ;
	19	PASS.1			
	20	PASS.2			
		21	INFRA	Infrared sensor	When it works, raising signal is not available, while falling signal is ok.
		22	GND		
M-P4	23	GND	485	Main board and slave board communication	
	24	485-			
	25	485+			
Slave board					
Terminal number	Port number	function	Description		
E-P1	1	VIN-	DC24Vpower	24V	

	2	VIN-	output		
	3	VIN+			
	4	VIN+			
E-P2	5	GND	485	RS485	
	6	485-			
	7	485+			
E-P3	8	+24V	N/A	Led and buzzer	
	9	LED1			
	10	+24V	LED		
	11	LED2			
	12	+24V	Buzzer		
	13	BEEP			
E-P4	14	+12V	12V power output	External input port	
	15	UP	Up		
	16	DOWN	Down		
	17	Up-Limit	Up limited		
	18	Down-Limit	Down limited		
	19	Press-Key	Press key		
	20	SAFE	Loop detector		
	21	GND	ground		
E-P5	22	NC1	Rely 1; Normal closed 1	Connect to 24V power	
	23	COM1	Relay 1; Common1		
	24	NO1	relay1;normal open 1		
	25	NC2	Relay 2; normal closed 2		Solenoid valve (bollard falls when power failure); another port for GND
	26	COM2	Relay ; common 2		24V power supply
	27	NO2	Relay 2; normal		Solenoid valve (bollard keeps on the




			open2	original status when power failure); another port for GND
	28	GND	24V power	Terminal for solenoid valve
	29	+24V	supply input	
E-P6	30	AC-L	AC220V/50Hz	Terminal for 220V AC power supply
	31	AC-N		
	32	Earth		
E-P7	33	COM	Common for motor	Terminal for motor
	34	M.U	Motor co-rotation (up)	
	35	M.D	Motor reverse (down)	
	36	Cap 2	capacitance (18uF)	
	37	Cap 1		
	38	M.E	Ground for motor	

Note :

- ① Station number of slave board should be started from 0001 and keep in a serial number (it has set at our factory)
- ② The max power for main board/slave board about 15w.

2.3 Working modes

Setting by code

Manual mode (default)		Bollards raise and fall by remote/push button
Automatic mode		Work with loop detector; bollards raise automatically
Free mode		Raising is not available; falling is ok

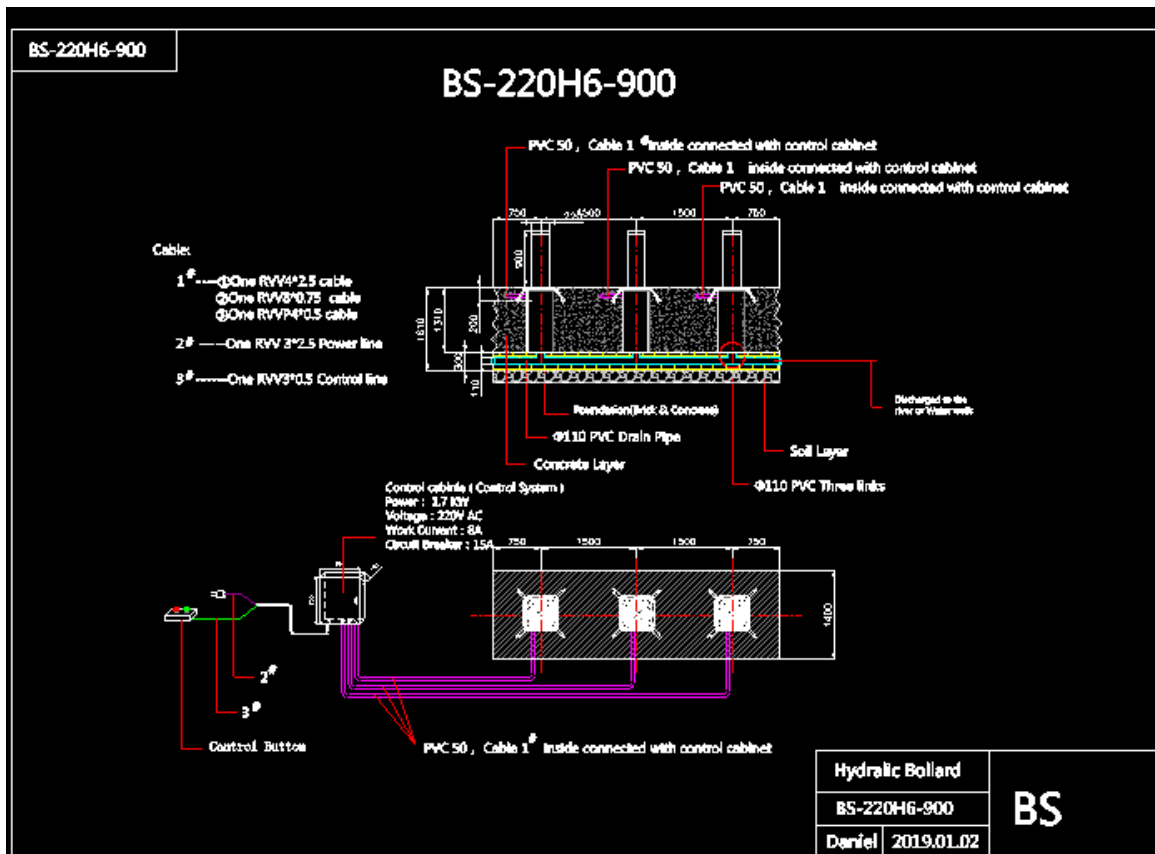
3 Installation

3.1 Bollard installation

- 1) Make sure bollard is not mounted in the low concave position. Otherwise you have to mount drainage system to protect bollard;
- 2) Dig a groove in deep of 1.14 meter. Intersecting surface is more than 0.8 meter.
- 3) Mount bollard based on our drawings. Pay attention to mount it in a vertical level. When you mount frame, please consider your pedestrian lane direction.
- 4) From buried pipe to management station, make a tube protector (32mm min diameter) using for power connection.
- 5) Do concrete to the top (10cm to ground level). Using the same material as ground.
- 6) Install other pipes connecting controlling station and other devices like traffic light, loop and card reader... Power supply, ground wire and others prepared.

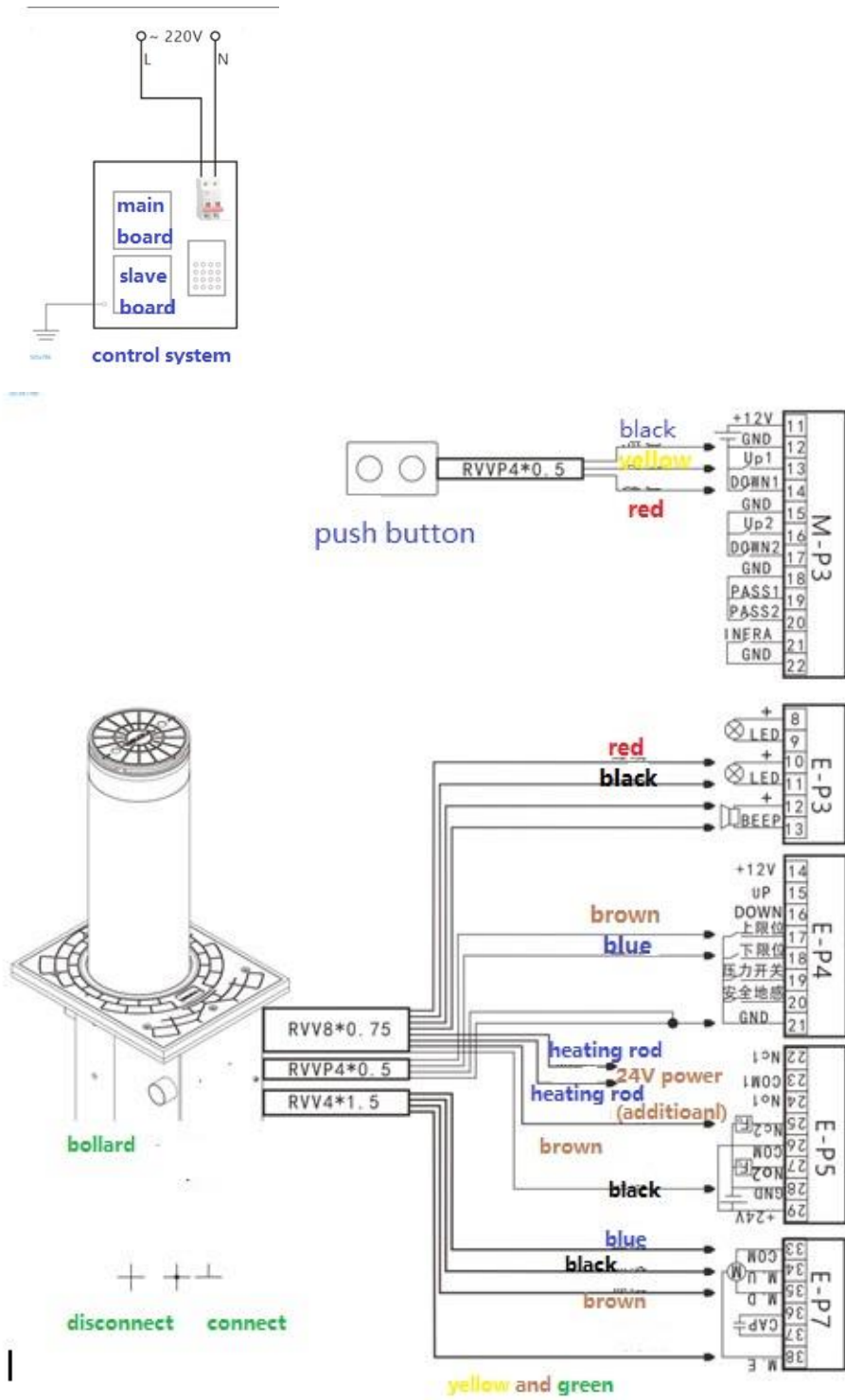
ATTN: your tube and pipe must be accordance with the standard of your country.

3.2 Drawings (for reference; subject to real one)



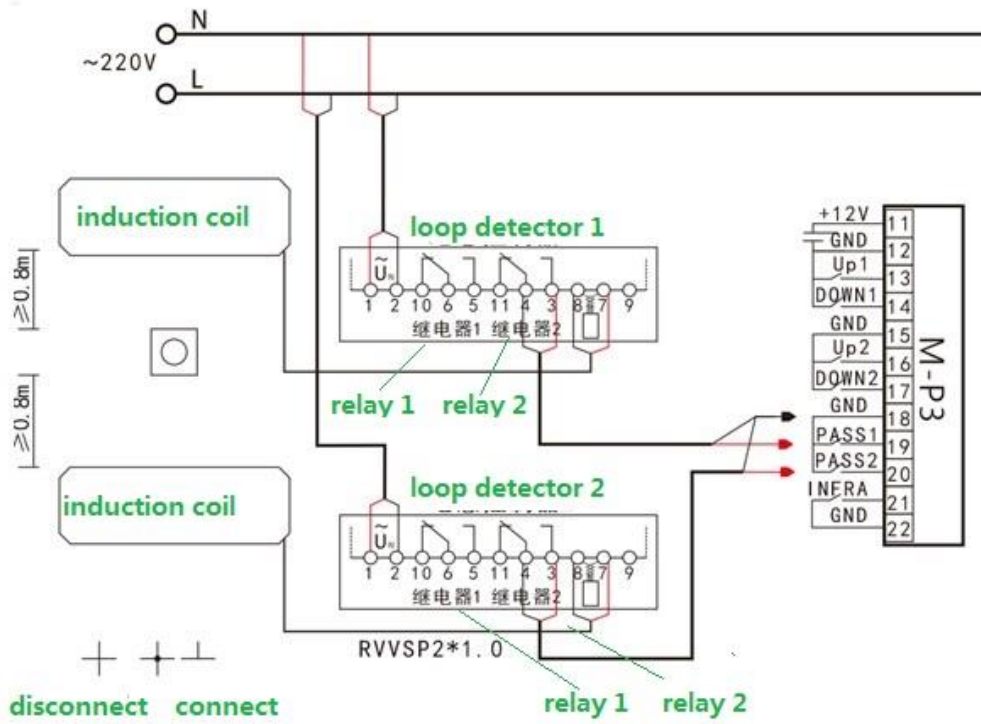
3.3 Wire connection

- ① AC 220V power input for control cabinet
- ② push button wire connection (if need)
- ③ bollard and slave board connection.



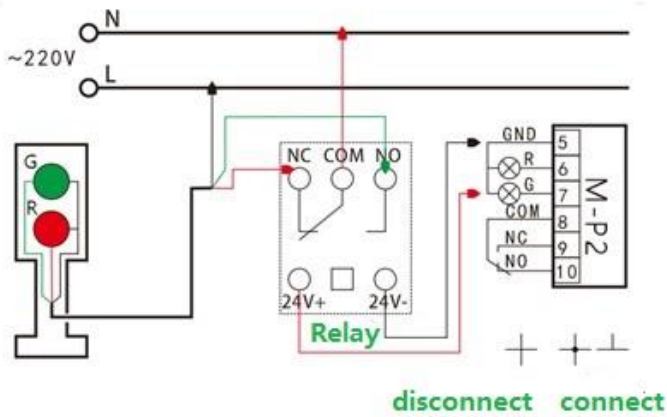
4 Additional

4.1 Loop detector

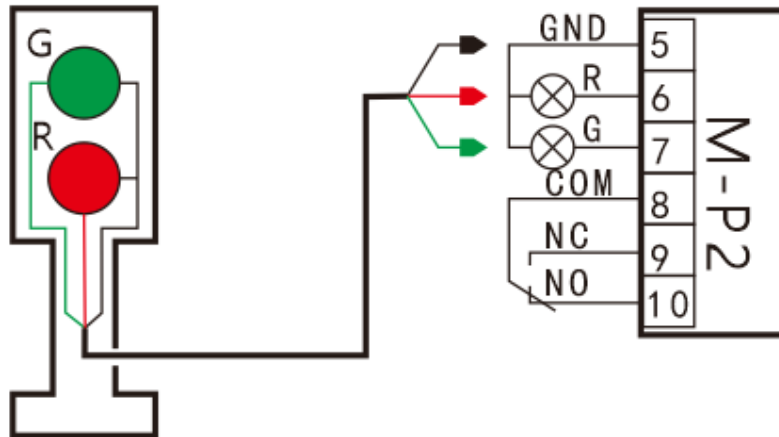


4.2 Traffic light

- 1) DC24V light can connect to control board directly.



2) AC220V light connect with relay.



4.3 Maintenance

Ordinary Routine Maintenance Procedure for Bollard

The standard routine maintenance sequence is as follows:

Cleaning of pit with suction of all material settlements

- Cleaning of water drains located on the pit bottom
- Cleaning and greasing of the central sliding rail
- Testing (and replacement, if needed) of the lower beat gaskets
- Testing and repair (if required) of the handling piston for oil leaks
- General testing of the pop-up element' s screws for correct tightening
- General cleaning of the driven cylinder and painting touch-ups, if needed
- Testing of the hydraulic station, top-up of oil level and checks over working pressure settings
- Testing and possibly setting of safety pressure switch for proper operation (40 Kg.)

Moreover, if the following items are in the system, perform the following checks and tests:

- Test the flashlight that is incorporated in the element' s head for proper operation
- Operating test of traffic-lights lanterns
- Operating test of inductive safety turns
- Check over the power failure procedure for proper operation
- Operating test over the control radio receiver
- Operating test of the emergency lowering sound analyzer
- Operating test of the remote control GSM effector