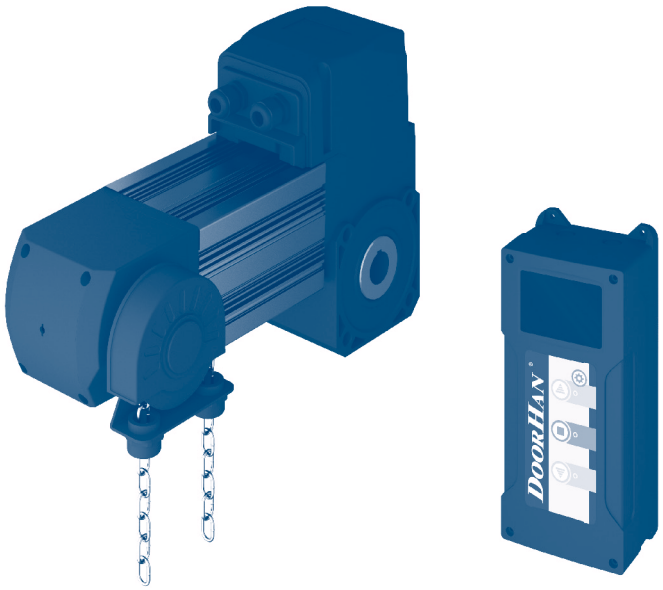
DOORHAN®

SHAFT-1P-KIT/ 3P-KIT SERIES



Installation and Operation Manual
Relevant for versions:
Control board - v 1.0
Software- v 1.0

DOORHAN®

1. GENERAL INFORMATION

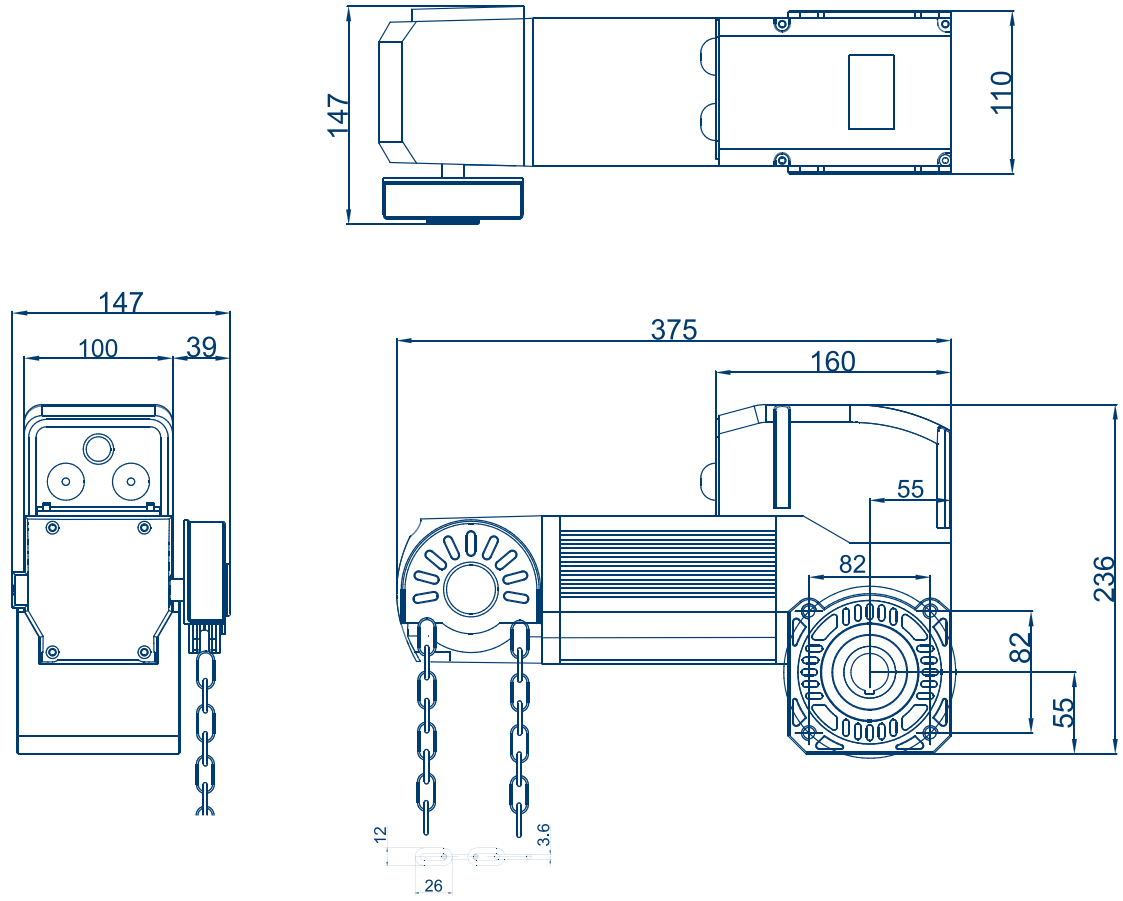
The electromechanical shaft operators 1P-KIT/3P-KIT series were designed for automation of industrial sectional doors. Each operator consists of a mechanical reducer in "oil bath", electric motor, encoder and control unit. The reducer and the motor have common casing.

The manufacturer does not directly control installation, operation and maintenance of the product. The operator shall be held responsible for safe operation and maintenance of the product. It shall be the responsibility of the operator to comply with the instructions listed in this manual.

Table 1. Parameters table.

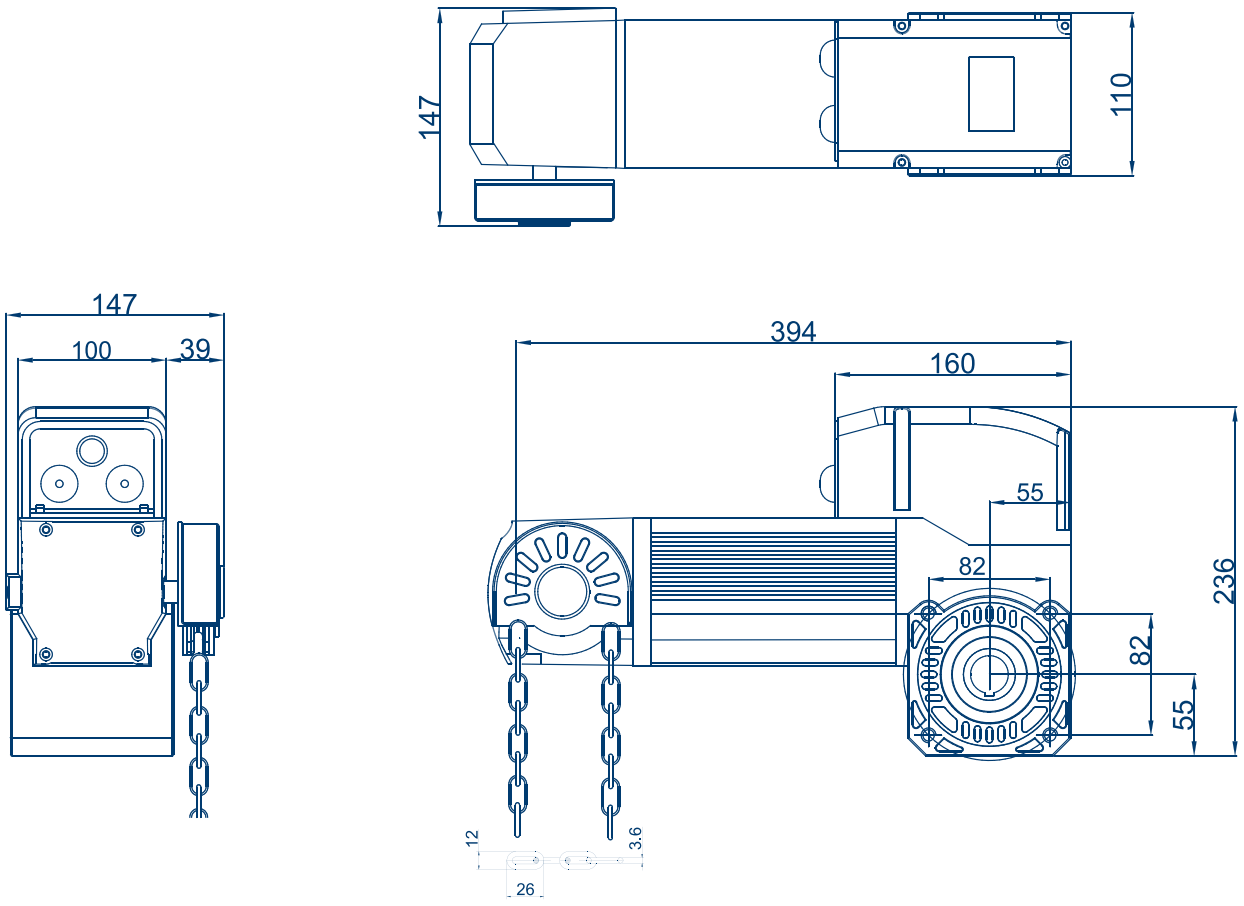
Type	SHAFT-60-1P-KIT	SHAFT-60-3P-KIT	SHAFT-100-3P-KIT	SHAFT-200-3P-KIT
Rated power	500W	300W	450W	650W
Starting torque	60Nm	60Nm	100Nm	200Nm
Max door weight (balanced door)	320kg	320kg	470kg	850kg
No-load operation time	15 min	25 min	25 min	25 min
Rated current	2.6 A	1.8 A	2.9 A	2.5 A
Voltage	AC220V 50/60 Hz	AC380V 50/60 Hz		
Thermal protection temperature	120°C			
No-load rotating speed	24 rpm (Reduction rate 1:58)			22 rpm (Reduction rate 1:60)
Type of lubricate	Oil Immersed			
Noise	≤55dB			
Max encoder limiting distance	20 rounds by output shaft			
Shaft hole diameter	Ø 25.4 mm			Ø 25.4 mm (32 mm optional)
Temperature range	- 20° C ~+45°C			
Duty cycle	S2 20% (continuous running with load no more than 10 min)			
Limit mode	Electronic limit			
Smooth start and stop	no			
Open/Close speed adjustment	no			
LCD display (Chinese and English)	no			
RS485 interface	no			
Fault log	no			
Protection classification	IP54			
Cable lengths	8m		9m	
Chain lengths	8m		16m	
Motor weight	13 kg		14kg	22kg
Control unit weight	1.5 kg			

Pic. 1.1. SHAFT-60-1P-KIT/SHAFT-60-3P-KIT



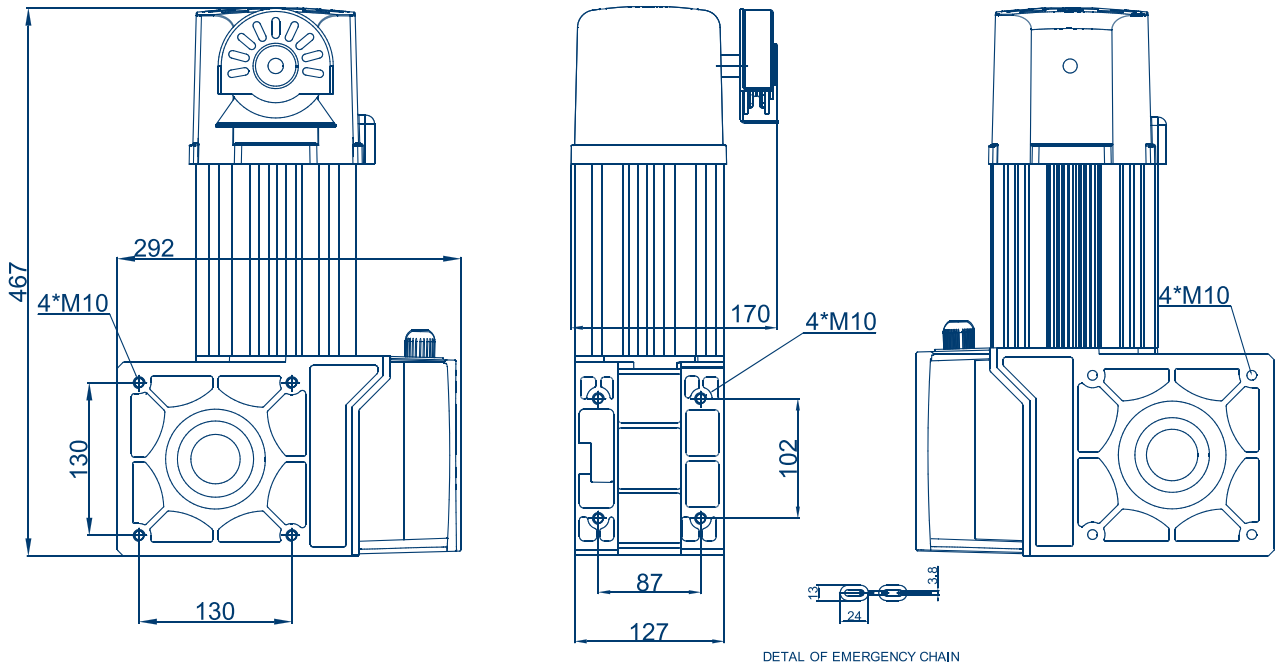
DETAL OF EMERGENCY CHAIN

Pic. 1.2. Motor size (SHAFT-100-3P-KIT)



DETAL OF EMERGENCY CHAIN

Pic.1.3. SHAFT-200-3P-KIT



2. SAFETY RULES

⚠ WARNING! IMPORTANT SAFETY INSTRUCTIONS!
It is important for the safety of persons to follow safety instructions. Save these instructions.

Follow all instructions since incorrect installation can lead to severe injury.

- 1P-KIT/3P-KIT series was designed for automation of industrial sectional doors. Do not use the operator for other than intended purposes.
- DoorHan shall not be held responsible in case of injury caused by misuse of the product.
- Prior to installation make sure that the door is properly balanced and moves smoothly.
- Installation must be performed in accordance with the standards EN12453 and EN 12445. For countries, which are not EC members, these requirements are to be met.
- Check if the door conforms to the standards EN12604 and EN 12605 (see documentation accompanying the door). For countries, which are not EC members, the above mentioned requirements shall be met in order to obtain an appropriate safety level.
- Mechanical units of the door shall conform to the standards EN12604 and EN 12605.
- Prior to installation, check that the location of operator installation is suitable by its climatic conditions to technical specifications of the operator.
- Do not install the operator in premises containing quick inflammable substances or other dangerous environments as it can cause explosion or fire.
- During assembly, installation and adjustment use tools specified in section «Tools» of this manual.
- When performing operation at height, use a stable support.
- When drilling holes, use protection for hands and eyes.
- For fastening of the item, use hardware supplied with the operator or other analogous one.
- Disconnect the supply when cleaning or other maintenance is being carried out, if the appliance is automatically controlled.
- If the operator is installed on the door with a wicket door an additional safety device should be used to prevent operator activation when the wicket door is open.
- Ensure that entrapment between the driven part and the surrounding fixed parts due to the opening movement of the driven part is avoided.
- It is highly recommended to use DoorHan optional equipment as the accessories produced by other manufacturers can damage the automated system.

- DoorHan is not responsible for unstable work of the automatic system when using safety devices and accessories, which are produced by other manufactures without agreement with DoorHan.
- Never leave the electric motors in released condition. This may cause uncontrolled movement of the door leaves and, consequently, their breakdown.
- Do not use the operator if it needs repair or adjustment as installation defects or unbalanced door can cause injury.
- DoorHan shall not be held liable in case of improper installation of the item and damage arisen during operation.
- Since the operator does not have a power cord with a plug it shall be connected to the mains supply via automatic switch with a minimal distance of 3 mm between the neighbouring contacts. It is recommended to use a 10A double pole circuit-breaker.
- Be sure there are no obstructions to door travel.
- Do not make any changes in the automatic system not specified in this manual.
- Remove package of the item and dispose of it. Keep the package materials away from children.
- Always keep remote controls out of reach of children. Never permit children to operate or play with garage door control push buttons or remote controls.
- No one should cross the pass of the moving door. The content of the manual shall not be basis for any claim.
- The manufacturer reserves the right to modify the design of the product described in this manual without preliminary notice.

⚠ WARNING!

- **For safe and correct operation of the operator put a stopper to limit door travel.**
- **Installation and configuration of the actuator must only be carried out by qualified specialists.**
- **After installing the operator, test force according to standards EN 12445 and EN 12453.**

⚠ WARNING! RISK OF INJURY!

Have a qualified technician lay the cables 220–380 V AC. The cables must be laid in protective corrugated tubes. Avoid contact of cables and moving parts of the door. In case of supply cable damage, use the suitable type of the cable.

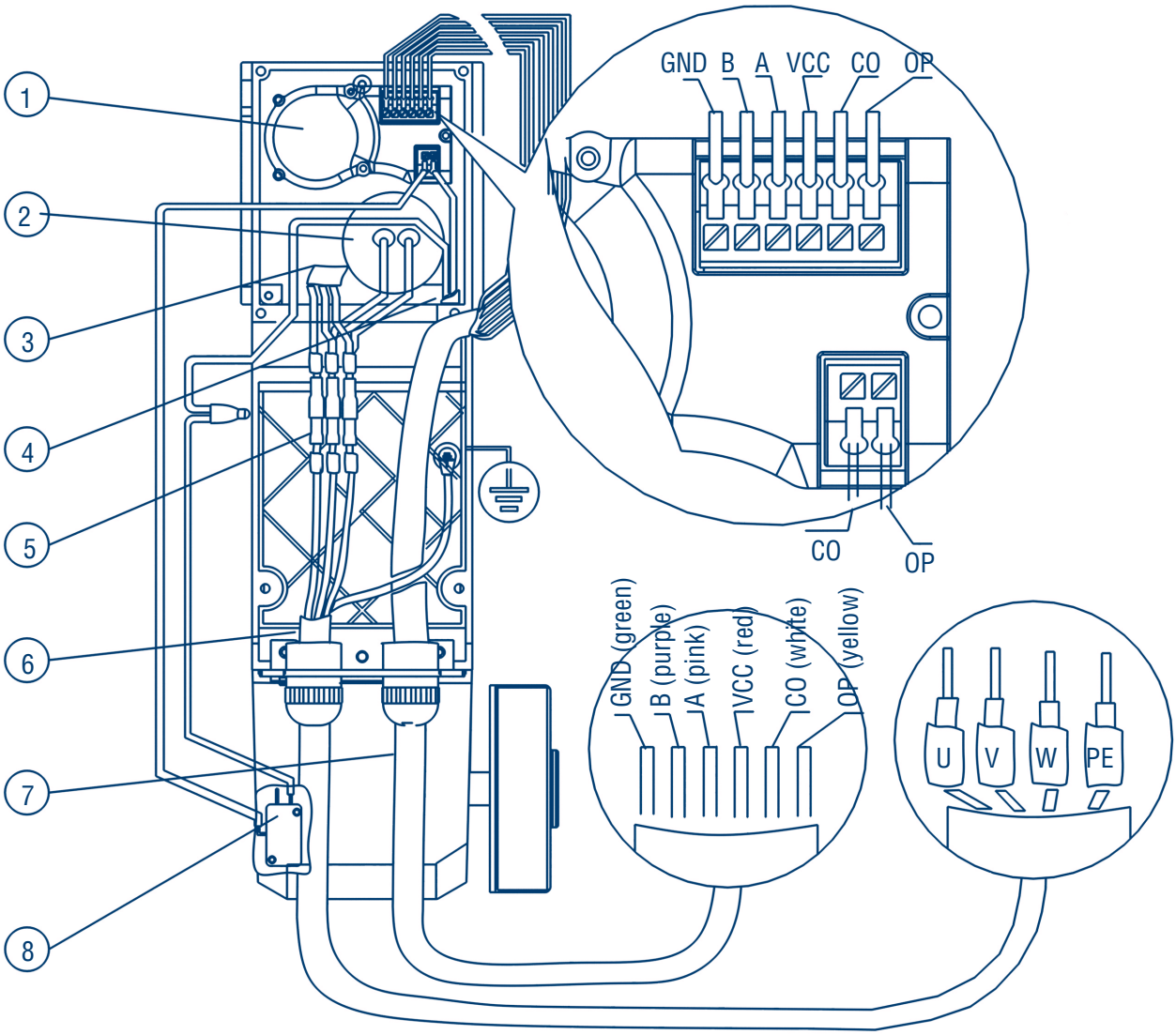
Cables needed for installation of 1P-KIT/3P-KIT series operators and accessories (if available).

- Cable 2 × 0.5 mm^2 (photocell transmitter, control button).
- Cabel 4 × 0.5 mm^2 (photocell receiver).
- Copper cable 3 x 1-1.5 mm^2 (1P motor power supply). Copper cable 5 x 1-1.5 mm^2 (3P motor power supply).

All the cables should be appropriately insulated.
Select the cable section according to the distance to the distribution panel.

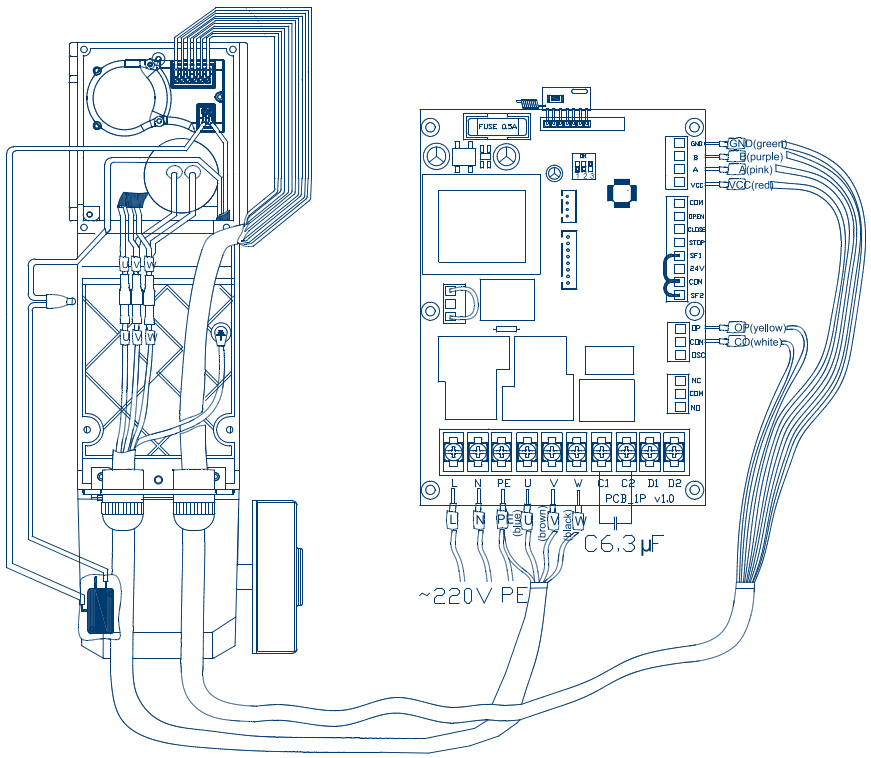
3. ELECTRICAL CONNECTIONS

Pic. 3.1. Motor wiring diagram



1. Encoder
2. Motor thermal protection line
3. Motor power wires
4. Terminals
5. Ground wire
6. Waterproof connectors
7. Safety switch
8. Power line
9. Signal line

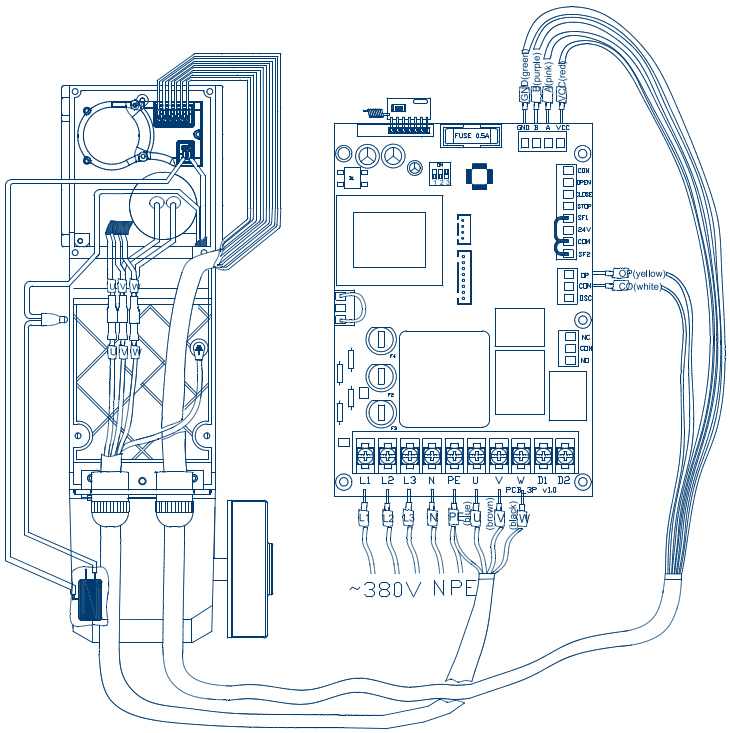
Pic. 3.2. AC 220V Motor and circuit board wire connection



Power line port

1. L, N: AC 220 V 50/60 Hz power supply.
2. PE: Grounding.
3. U, V, W: Motor line. U (blue), V (brown), W (black) and motor terminals U, V, W corresponding connection.
4. C1, C2: Capacitor (6.3 μF).
5. D1, D2: Multifunction 220V AC output port.

Pic. 3.3. AC 380V Motor and circuit board wire connection



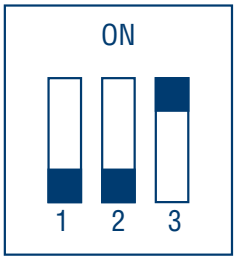
Power line port

1. L1, L2, L3: AC 380 V 50/60 Hz power supply.
2. PE: Grounding.
3. U, V, W: Motor line. U (blue), V (brown), W (black) and motor terminals U, V, W corresponding connection.
4. D1, D2: Multifunction 220V AC output port.

4. SETTINGS

Pic 4.1. Settings of code switch

Code switch 1: Limit mode choice.
ON: mechanical limit.
OFF: electronic limit.
-
Code switch 2: Not used. Keep it OFF.
-
When mechanical limit:
Code switch 3:
ON: Automatic delay shutdown state.
OFF: Manual shutdown state.
-
When electron limiting time:
Code switch 3.
ON: Allows change settings.
OFF: Prohibit change settings.



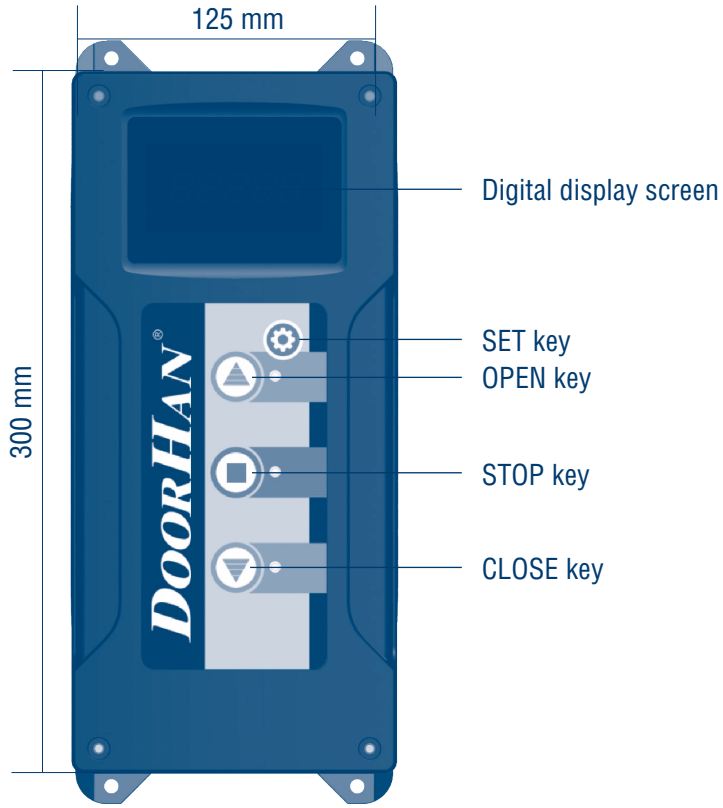
Pic 4.3. Control signal port

1.	COM	Common port
2.	OPEN	Open
3.	CLOSE	Close
4.	STOP	Stop
5.	SF1	Pass door protection (Door STOP and cannot run while pass door opened)
6.	+24 V	Power output
7.	COM	Common port
8.	SF2	Photocells (NC) and safety edge(NC) connected in series (the door opens when an obstacle is detected)
9.	OP	Safety switch and thermal protection limit thermal protection
10.	COM	Public port
11.	OSC	Single button OPEN-STOP-CLOSE logic
12.	NC	Multifunctional output 1 NC
13.	COM	Common port COM
14.	NO	Multifunctional output 1 NO

Description of ports' functions

1. Motor overheating protection. Connect the yellow and white cables to the CL and CO ports of the mechanical limit ports in the circuit board. When the motor temperature above 120 degrees, motor automatic stop working opportunity.
2. External three button post. Three button to switch to an external access port 2 (OPEN), 3 (CLOSE), 4 (STOP (NC type)) and 1 (COM) port.
3. DC24V power supply output. Ports 6 (+24V) and 7 (COM) are DC24V power supply output port.
4. Photocells. The photocells, connect to 8 (SF2) and 7 (COM), 24V power connect to 6 (+ 24V) and 7 (COM). The jumper is set by default, please remove the short jumper. By default the input signal is NC type, NO type can be set up through parameter P2-07.
5. Safety edge. Air safety edge, connect to 8 (SF2) and 7 (COM). If wireless safety edge connect the 24V to 6 (+ 24) and 7 (COM). The jumper is set by default, please remove the short jumper. By default the input signal is NC type, NO type can be set up through parameter P2-07.
6. Pass door protection function . and to access the door switch line 5 (SF1) and 7 (COM) port. The jumper is set by default, please remove the short jumper. By default the input signal is NC type, NO type can be set up through parameter P2-08. Door STOP and cannot run while pass door opened.

Pic 4.4. Display settings button and display symbols



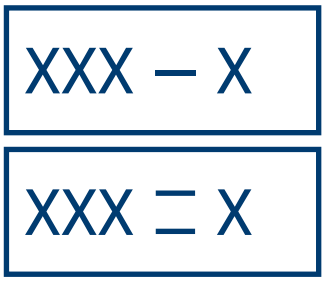
SET key: Used for settings and parameters confirmation.
OPEN key:
1. Used to open the door.
2. Used to increase the value of the parameter.

STOP key:
1. When door running, used to stop the door.
2. When setting a specific data state, it is used as a shift cursor.
3. When setting the parameter, used as the exit key.

CLOSE key:
1. Used to close the door.
2. Used to reduce the value of the parameter.

Normal working state, the screen will display open degree, manual and automatic closed state, state of input. This state is called “main menu”.
1. Opening degree, according to screen data as the door open degree, “XXX” data change between 0–100.
2. Manual and automatic operation modes. Long press the STOP key more than 6 seconds, for manual and automatic mode change.

Pic 4.5. Dial the code switch settings



Manual operation mode

Automatic operation mode

3. “X” Input status will display the current input signal digital code.
4. Input signal status code is provided in Table 4.1.

Table 4.1. Input state

Number	Instructions
1	Stop
2	Open
3	Close
4	SF2
5	SF1
6	One key
7	Middle limit
8	Interlock

Door up and down limits adjustments:
1. Long press SET key more than 3 seconds, the display shows P0, than press the SET key one nore time, the display will show LO (upper limit ready to adjust).
2. Press and keep holding the OPEN key (UP) until the door reaches the desired location.
3. Press SET key to save the settings.
4. LED display shows L1 (lower limit ready to adjust).
5. Press and keep holding the CLOSE key (down) until the door reaches the desired location.
6. Press SET key to save the settings.
7. LED display shows “0-” means the limit learning is completed.

-

2) P1 parameter settings. Before debugging, make sure the switch No. 3 is ON.
1. Long press SET key more than 3 seconds, the display shows P0, than click the OPEN key. Select parameter P2.
2. Then press OPEN key or CLOSE key, (display data can switch between P1, P2, P3).
3. Switch to the P1 parameters, and then press SET key.
4. Press SET key, LED show P1-01 (at this point by OPEN key or DOWN key you can choose and adjust the parameters).
5. Then press SET key to save the settings.

-

After the set completion of parameter press SET key to save, step-by-step press STOP key exit to the main menu.

Table 4.2. P1 parameters

Number	Instructions	Parameter range	Default value
P1–01	Door auto closing time delay	1s-600s	10
P1–02	Multifunctional output 1 (NC, COM, NO ports)	0=no signal, 1=close and stop, 2=open and stop, 3=motor running, 4=wind curtain fan, 5=alarm	2=open and stop
P1–03	Open limit precise adjustment	0–200	30
P1–04	Close limit precise adjustment	0–200	60
P1–05	Pass the upper limit alarm	10–200	80
P1–06	Pass the bottom limit alarm	10–200	80
P1–07	SF2 cut-off distance	1–1500	50
P1–08	Upper limit query	Upper Date (Only Qurey&Reading)	
P1–09	Lower limit query	Lower Date (Only Qurey&Reading)	
P1–10	Current location query		
P1–11	Multifunctional output 2 (D1/D2 PORT 220V) 1A max	0=no signal, 1=close and stop, 2=open and stop, 3=motor running, 4=wind curtain fan, 5=alarm	2=open and stop
P1–12	P1 Parameters	1=restore	

NOTICE: If you need to limit the operation height of security devices connected to SF2, change the SF2 value to the corresponding number on the object directly.

3) P2 parameter settings. Before debugging, make sure the switch No. 3 is ON.
1. Long press SET key more than 3 seconds, the display shows P0, than click the OPEN key. Select parameter P2.
2. Then press OPEN key or CLOSE key, (display data can switch between P1, P2, P3).
3. Switch to the P2 parameters, and then press SET key.

4. Press SET key, LED show P2-01 (at this point by OPEN key or DOWN key you can choose and adjust the parameters).
5. Press SET key to save the settings.

After the set completion of parameter press SET key to save, step-by-step press STOP key exit to the main menu.

Table 4.3. P2 parameters

Number	Instructions	Parameter range	Default value
P2–01	Run time protection	60S-200S (At 200S, time protection is off)	60
P2–02	Locked-rotor time	1,0–7,0 At 7.0 time, Blocking protection is off	7,0
P2–03	Open logic (Control unit button)	0=Impulse mode, 1=Jog mode	0=Impulse mode
P2–04	Close logic (Control unit button)	0=Impulse mode, 1=Jog mode	0=Impulse mode
P2–05	Mechanical limit contact type	0=(NO); 1=(NC)	0=(NO)
P2–06	Stop contact type	0=(NO); 1=(NC)	0=(NO)
P2–07	SF2 contact type	0=(NO); 1=(NC)	1=(NC)
P2–08	SF1 contact type	0=(NO); 1=(NC)	1=(NC)
P2–09	Phase sequence detection	0=CLOSE; 1=OPEN	0
P2–10	Remote control mode	0=three button mode, 1=step-by-step	0
P2–11	Antifreezing function	0–40 (0=off; Other values indicate the time between runs)	0
P2–12	P2 Parameters restore the default value	1=restore factory settings	0

4) P3 parameter settings. Before debugging, make sure the switch No. 3 is ON.

1. 1. Long press SET key more then 3 seconds, the display shows P0, than click the OPEN key. Select parameter P2.
2. 2. Then press OPEN key or CLOSE key, (display data can switch between P1, P2, P3).
3. 3. Switch to the P3 parameters, and then press SET key.
4. 4. ENTER the password. The default password is 00000. (The STOP key is a cursor shift key that can move the digital cursor by one digit, ten digits, one hundred digits and a thousand digits, and then use the OPEN key or CLOSE Key to adjust the data for each digit up and down.)
5. 5.Press SET key, LED show P3-01.
6. 6. Press SET key for change the password (The STOP key is a cursor shift key that can move the digital cursor by one digit, ten digits, one hundred digits and a thousand digits, and then use the OPEN key or CLOSE Key to adjust the data for each digit up and down).
7. 7. Press SET key to save the settings.
8. After the set completion of parameter press SET key to save, step-by-step press STOP key exit to the main menu.

Table 4.4. P3 parameter, password 00000

Number	Instructions	Parameter range	Default value
P3–01	Change password	0–99999	00000
P3–02	Run time Settings (days)	0–99999	99999
P3–03	Run number Settings (number)	0–99999	99999
P3–04	View the total elapsed time (days)	0–99999	Current time
P3–05	View the running number	0–99999	Current time
P3–06	View the running number (the number of more than ten thousand shows)	0–99999	Current time

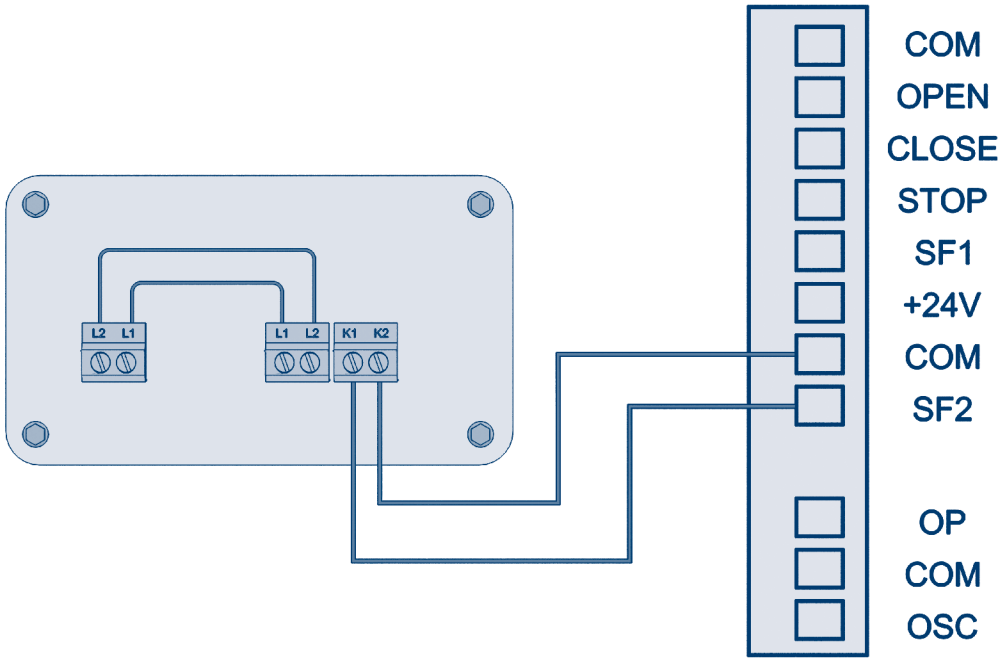
5) The function of remote control settings

Remote control receiving plate, installed on the screen of the socket on the back of the circuit board, can plug. Pay attention to the direction of the insert, when installation should pay attention to in rectangle area specified by the circuit board.

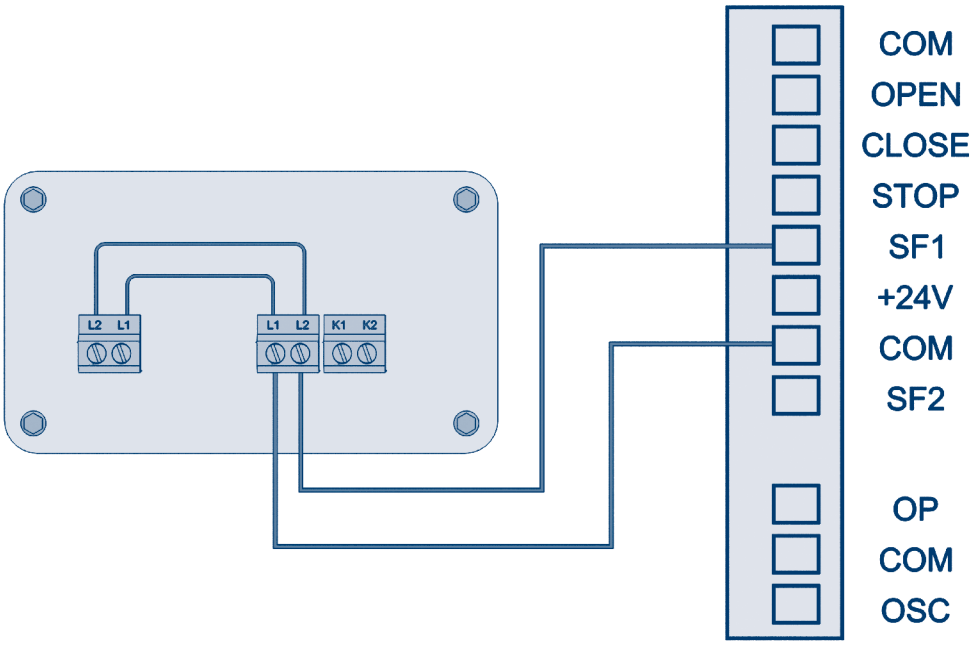
1. After electrify hold the remote control receiver plate on white button until the red light is extinguished, to remove the original password.
2. To press the white key learning, found that loosen the red indicator into the learning state.
3. Press any one transmitter, found that the red light is put out after two flashes, end of the learning process.

5. ACCESSORIES CONNECTION

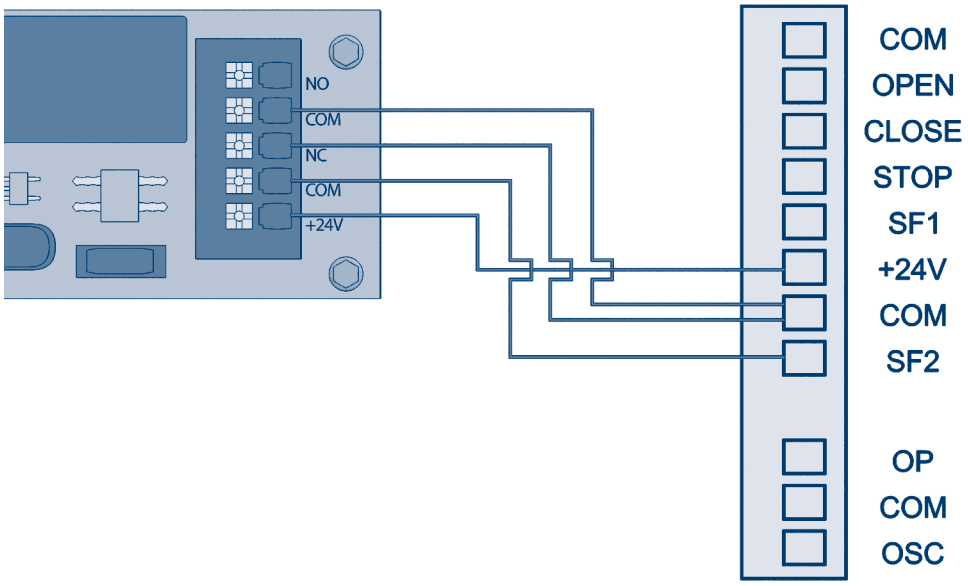
Pic. 5.1. DH-SAFETY



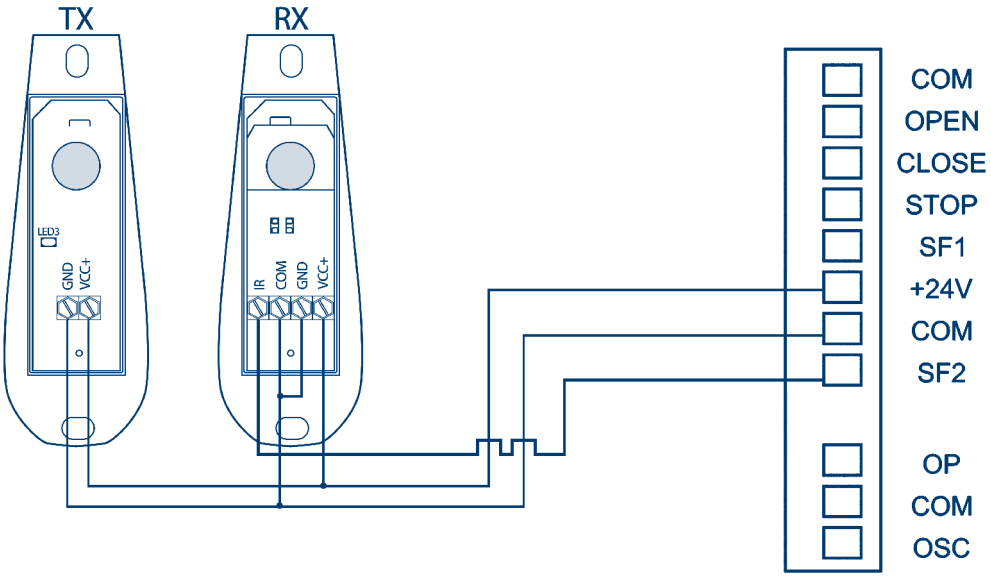
Pic. 5.2. WDKIT



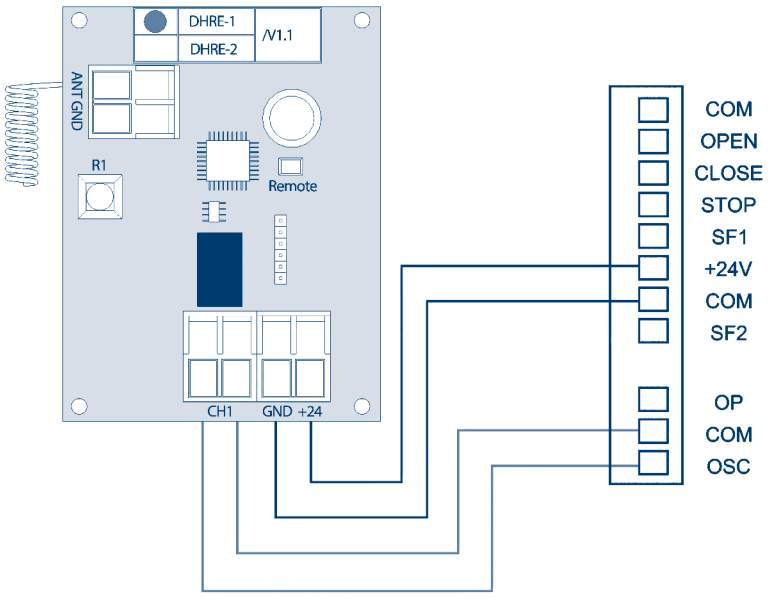
Pic. 5.3. DH-W-Safety



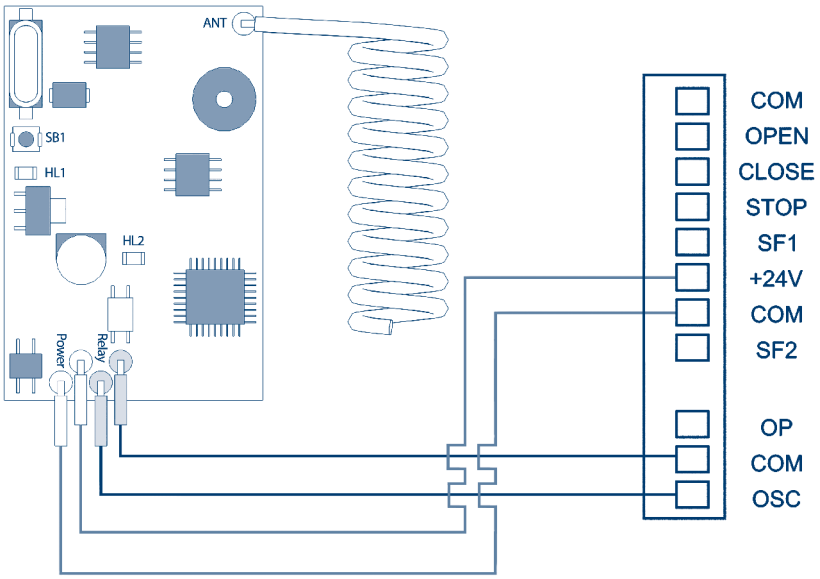
Pic. 5.4. Photocells



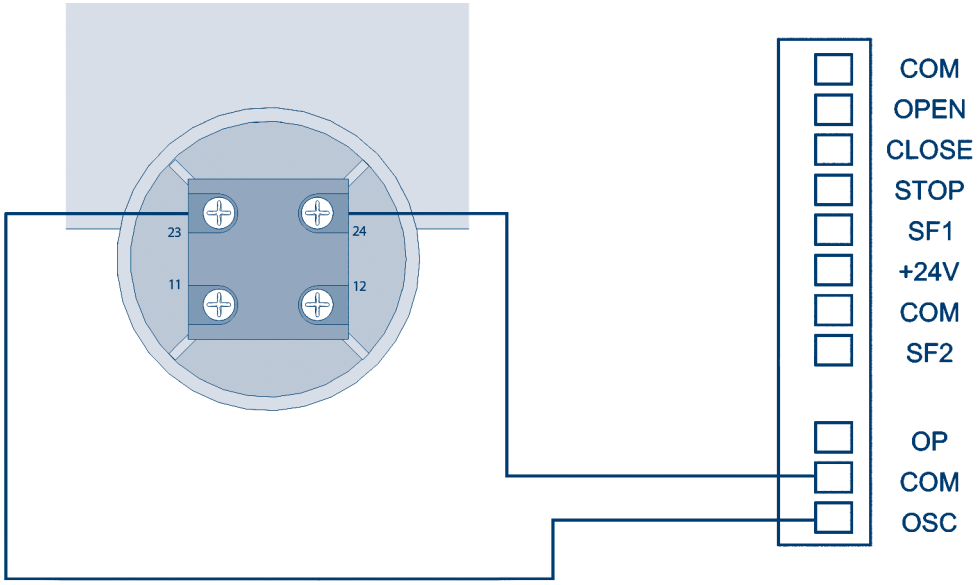
Pic. 5.5. DHRE-1



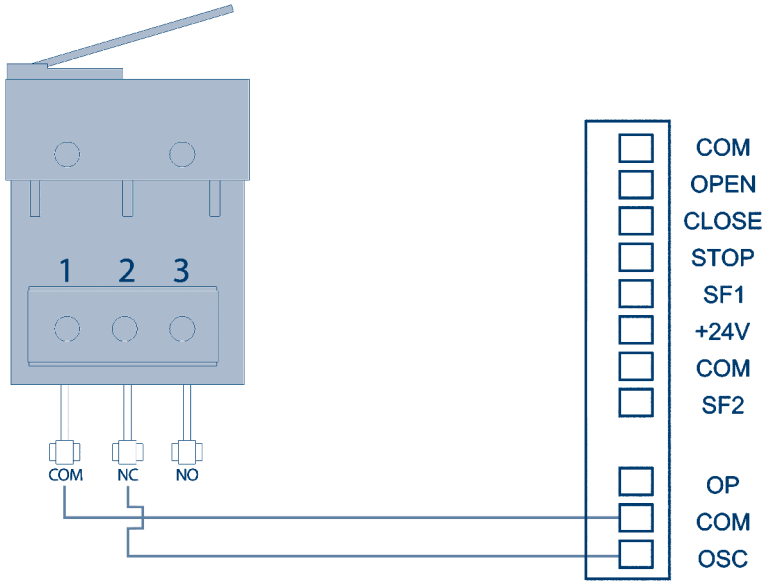
Pic. 5.6. DHREmini



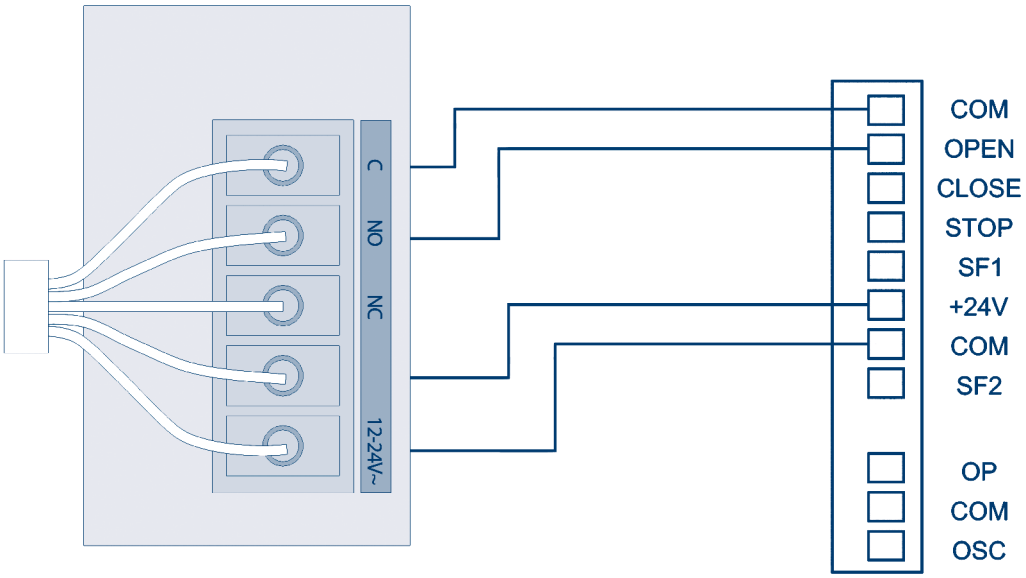
Pic. 5.7. Button (DKH009)



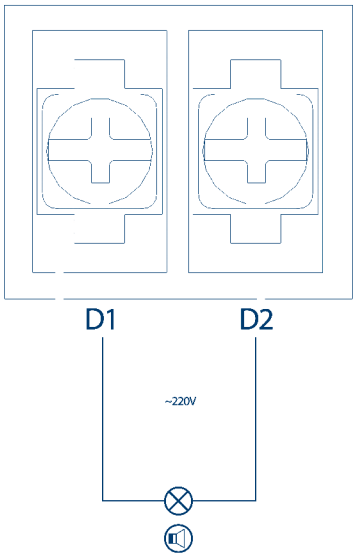
Pic. 5.8. KEYSWITCH_SWK



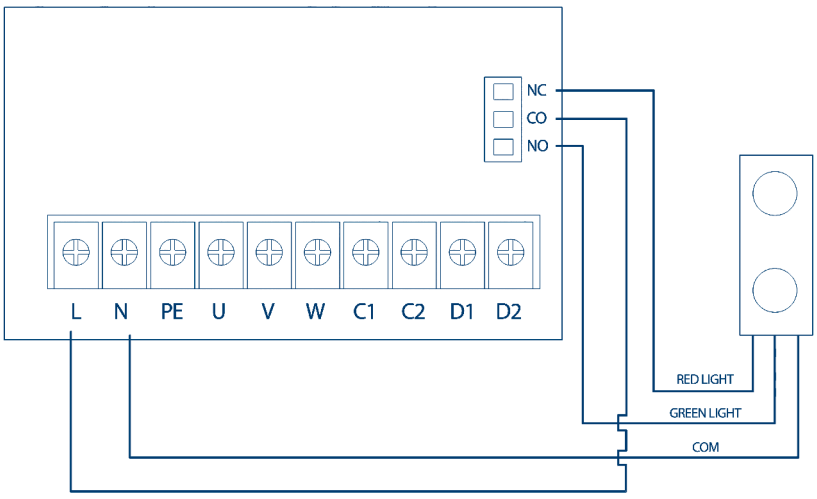
Pic. 5.9. Radar (AD-06)



Pic. 5.10. Lamp or Siren (220V)

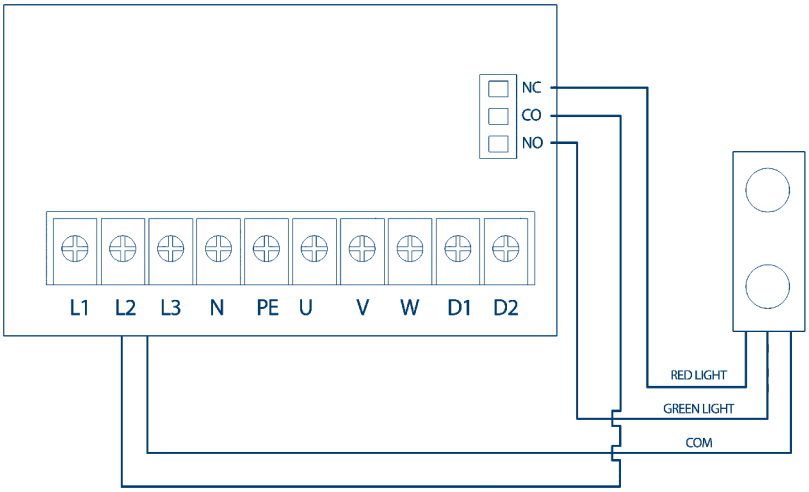


Pic. 5.11. Traffic light 1P Motor

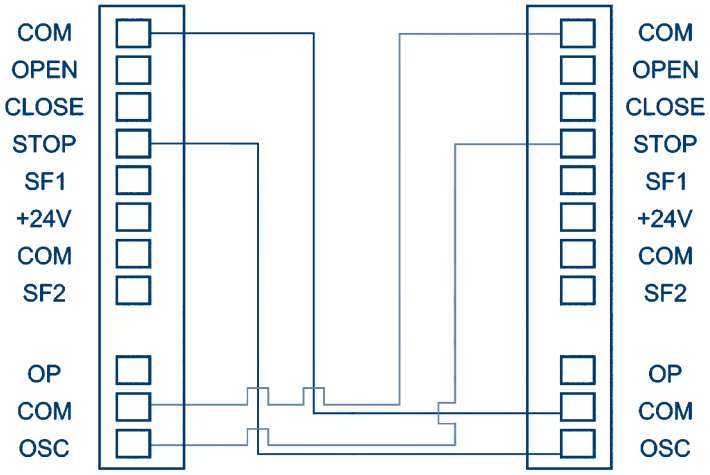


Note: Set the value of the multifunction output 1 (P1-02) to be 2

Pic. 5.12. Traffic light 3P Motor



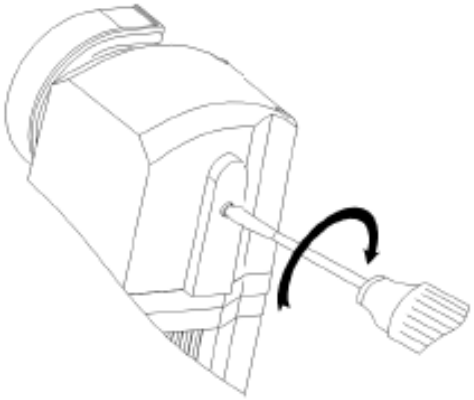
Pic.5.13. Interlock



6. MANUAL CHAIN USING METHOD

When it is necessary to operate the door machine manually, the loop chain will be used. It is advisable to operate the chains with even and continuous force. Sudden jerk of the chain shall be avoided to avoid the damage to the manual mechanism. Pull the chain to realize the opening and closing of the door. During the pull, the protective switches located in the manual chain mechanism automatically cuts off the power to avoid accidents. Once the chain is released, the manual chain mechanism will automatically restore to its original position and the industrial door machine is restored to the normal power-driven status. When the loop chains are not in use, please secure the chains on the wall.

Pic. 6.1. Changing the chain reducer position if the drive is hanging at an angle



7. CIRCUIT BOARD FAULT CODES

Table 7.1. Reasons and solutions of fault codes

Fault code	Instructions	The reason for the error analysis
ERR01	Power supply lacks	Three-phase 380V lack of L2 phase or wrong phase connection
ERR02	Encoder not connected	Encoder cables
ERR03	Limit anomaly	Limit not set or limit beyond the set value
ERR06	Exceeding the max cycle/time limit	Reset the cycle/time counter
ERR07	Motor blocked	Lack of motor torque (press ENTER reset)
ERR09	Motor heat protection	Waiting for the motor cooling
ERR010	Small door abnormal	Check the wiring or replace the switch
ERR011	Runtime exception	The running time exceeds the set value

8. ACCESSORIES LIST

Table 8.1. Control unit supply list

Number	Name	Quantity	Note
1	Control unit	1	Standard
2	Remote control		Optional
3	Waterproof connectors	2	Standard

Table 8.2. Motor supply list

Number	Name	Quantity	Note
1	Motor	1	Standard
2	Installation bracket	1	Standard
3	Fixation ring	2	Standard
4	Key	2	Standard
5	Hex bolt M10*20	4	Standard
6	Power cable	1	Standard 4*0,75*8m
7	Signal cable	1	Standard 6*0,3*8m
8	Chain 60-100Nm motor chain extension article - DHCHAIN-1P 200Nm motor chain extension article - DHCHAIN-3P(200)	1	Standard 8m

Table 8.3. Motor spare parts list

Number	Article	Note
1	1P-CU	Control unit assembly for Shaft-60-1P drive(220V)
2	3P-CU	Control unit assembly for Shaft-60-3P, Shaft-100-3P and Shaft-200-3P(380V)
3	1P-PCB	Main PCB for Shaft-60-1P drive control unit(220V)
4	3P-PCB	Main PCB for Shaft-60-3P drive control unit(380V)
5	1P/3P-DISPLAY	Control unit display for Shaft-60-1P/3P, Shaft-100-3P and Shaft-200-3P
6	1P/3P-BUTTONS	PCB with control unit buttons for Shaft-60-1P/3P, Shaft-100-3P and Shaft-200-3P
7	1P/3P-RECEIVER	Removable radio receiver for Shaft-60-1P/3P, Shaft-100-3P and Shaft-200-3P

Number	Article	Note
8	1P/3P-ENCODER	Encoder for Shaft-60-1P/3P, Shaft-100-3P and Shaft-200-3P
9	1P/3P-CR-60/100	Chain reducer assembly for Shaft-60-1P/3P, Shaft-100-3P without cover
10	1P/3P-CR-200	Chain reducer assembly for Shaft-200-3P without cover
11	1P/3P-CRC-60/100	Chain reducer plastic cover for Shaft-60-1P/3P, Shaft-100-3P
12	1P/3P-CRC-200	Chain reducer plastic cover for Shaft-200-3P
13	1P-M	Shaft-60-1P 220V Motor assembly
14	3P-M-60	Shaft-60-3P 380V Motor assembly
15	3P-M-100	Shaft-100-3P 380V Motor assembly
16	3P-M-200	Shaft-200-3P 380V Motor assembly
17	1P/3P-R-60/100	Gearbox assembly for Shaft-60-1P/3P, Shaft-100-3P
18	1P/3P-R-200	Gearbox assembly for Shaft-200-3P
19	1P/3P-TC-60/100	Top plastic cover for Shaft-60-1P/3P, Shaft-100-3P
20	1P/3P-TC-200	Top plastic cover for Shaft-200-3P
21	1P/3P-CSC-60/100	Plastic cover with cable leads for Shaft-60-1P/3P, Shaft-100-3P
22	1P/3P-CSC-200	Plastic cover with cable leads for Shaft-200-3P
23	1P/3P-Br-60/100	Wall mounting bracket for Shaft-60-1P/3P, Shaft-100-3P
24	1P/3P-Br-200	Wall mounting bracket for Shaft-200-3P
25	1P-SC	Starting capacitor 6.3uF Shaft-60-1P 220V
26	1P-MC	Main Capacitor 25uF Drive Shaft-60-1P 220V

NOTES

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