



Quantek 20EU Three Phase Control Panel User Manual

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Quantek 20EU Three Phase Control Panel



Product Information

The I20EU is a three-phase control panel designed for high-speed doors. It features position control using Elektromaten or Kostal digital end limit switches or mechanical limit switches. The control panel is equipped with a motor brake and flashing outputs at 230v AC, as well as voltage-free contact outputs for indicating door open and door closed. It also has multiple power supply outputs for connecting photocells or other accessories. The control panel has inputs for opening and closing buttons, limit switches, security contacts, safety edge, and stop button. It also has connectors for plug-in cards such as motion STICK receiver, radioband3G RSEC3 receiver, traffic light card TL-CARD-V, and magnetic detector card MTC1. The control panel complies with the electrical safety standard EN 60335-1:2012.

Product Usage Instructions

1. Ensure that children do not play with the door controls and keep the remote controls out of their reach.
2. Always keep watch over the door movement and keep people away until the door is fully open or closed.
3. Exercise caution when operating the manual unlocking device, as the door may suddenly fall if the springs are in bad condition or the door is poorly balanced. Refer to the manufacturer or device installer for details on how to use the manual unlocking device.
4. Regularly inspect the installation, including cables, springs, and supports, for signs of wear, damage, or imbalance. Do not use the door if it requires repair or adjustment to prevent injury.
5. For installation safety, the person operating the door must have a direct view of the doorway, be near the door (maximum 5 meters) during movement, and avoid dangerous positions. Adjusting the radio range beyond these recommendations is the responsibility of the installer, who assumes liability for any resulting injury or damage.

Safety instructions – Important annex

Important safety instructions for the installation

- Disconnect the power supply before manipulating the equipment in any way.
- Before installing the panel, remove all unnecessary ropes or chains and disable any equipment such as locks that is not necessary for the automatic operation.
- Before installing the panel, check that the door is in good mechanical condition, correctly balanced and that it opens and closes correctly.
- Install the manual unlocking device at a height lower than 1.8m.
- Install any permanent control next to the door away from any moving part and at a minimum height of 1.5m.
- An easily accessible power supply disconnection device must be fitted to the wiring for permanently connected equipment. This device must ensure multi-pole cut-off of the power supply. It is advisable for this to be an emergency breaker/isolator type switch.
- If the panel is supplied without an emergency stop button, this must be incorporated into the installation, connecting it to the STOP terminal.
- For correct use of the security band, this must never be activated when the door is fully closed. It is recommended to install the limit switches before activating the band.
- This equipment can only be manipulated by a specialist fitter, by maintenance staff or by a suitably trained operator.
- To connect the power supply and motor wiring, terminals with a cross-section of 2.5 mm² must be used.
- Use protective eyewear for handling the equipment.
- Fuses must only be handled when the appliance is disconnected from the power supply.
- The instructions for using this equipment must remain in the possession of the user at all times.
- European door standard EN 12453 and EN 12445 specify the following minimum protection and safety levels in doors:
 - for single-family homes, prevent the door being able to come into contact with any object or limit the contact force (e.g. safety edge), and, in the event of automatic closure, a presence detector (e.g. photocell) must be added.
 - for communal and public installations, prevent the door being able to come into contact with any object or limit the contact force (e.g. safety edge) and detect presence (e.g. photocell).

I20EU control panel switches automatically to dead man mode when safety devices are active or defective. Therefore, all controls work as “hold-to-run” controls.

WARNING: IN ACCORDANCE WITH THE EN 13241-1 AND EN 12453-1

STANDARD CONCERNING PRESSURE MAINTAINED CONTROL DEVICES:

- “The person operating the door must have a direct view of the doorway, must be near the door (5 meters maximum) during movement of the door and should not find itself in a dangerous position”. Any adjustment of the radio range out of these recommendations, undertakes the installer in terms of responsibility for injury or damage.
- “Releasing of the pressure maintained control device should stop the door movement before it scrolls 5cm”.

Important safety instructions for use

- Do not allow children to play with the door controls.
- Keep the remote controls out of the reach of children.
- Watch the door movement and keep people away until the door is fully open or closed.
- Take care when operating the manual unlocking device, as the door may suddenly fall due to the bad condition of the springs or a poorly balanced door. Details on how to use the manual unlocking device must be provided by the manufacturer or the device installer.
- Examine the installation frequently, especially the cables, springs and supports, to detect signs of wear, damage or imbalance. Do not use the door if it needs to be repaired or adjusted, as doing so may cause injury.



**IMPORTANT
NOTE**



**SAFETY
WARNING**



Installation



Maintenance



Connections



Programming

Introduction

- A three-phase control panel with position control using Elektromaten or Kostal digital end limit switches or mechanical limit switches, designed for high speed doors.
- Fitted with motor brake and flashing outputs at 230v AC, and voltage-free contact outputs for indicating door open and door closed.
- Fitted with one 24Vac and two 24Vdc power supply outputs for connecting photocells or other accessories such as radar. Between the three of them, these outputs provide a maximum of 700mA.
- It has inputs for opening and closing buttons, as well as for selecting total or partial opening. It also has inputs for limit switches, security contacts, safety edge and stop button.
- It also has connectors for plug-in cards: motion STICK receiver, radioband3G RSEC3 receiver, traffic light card TL-CARD-V and magnetic detector card MTC1.
- In case of activation of any safety input, if any control input is kept active, the movement of the door will pass to a hold-to-run control mode (Dead Man), and the LED on the cover will flash to indicate that mode.
- This control panel complies with current electrical safety standard EN 60335-1: 2012.

Technical Data

PARAMETER	VALUE
Power supply	400Vac three-phase / 230Vac
Maximum power of motor	2,2kW / 1,2kW
Optional cards (EXPANSION1/EXPANSION2)	RSEC3, TL-CARD-V
Receiver card connector	Motion STICK / DCS RACK
230V output	Motor brake and flashing
Voltage-free outputs	OPEN/CLOSE door status signals
24Vac +/- 20% / 24Vdc / 24Vdc TEST outputs	Accessories power supply / Photocells test (shared 700mA)
ENCODER connector	Connector for digital end limit switch with encoder inhibiting selector
Auto-close time	Adjustement from 3s to 60s,
Operating temperature	-20°C a +55°C
IP rating	IP65
Size	285 x 225 x 92 mm

Description

1. EXPANSION CARD 1

RSEC3 Radioband receiver connector

2. EXPANSION CARD 2

TL-CARD-V Connector

3. RECEIVER

Motion STICK / DCS RACK receiver connector

4. 24VAC OUTPUT

Output for power supply for accessories

5. FUSE

1A/250V

6. SELECTION

400VAC / 230VAC

7. POWER SUPPLY

Power supply input connection

8. LEDS ON / ERROR

Indicates power supply / error

9. PANEL DIRECTION LEDS

Indicate motor turning direction

10. MTC

Connector for magnetic detector card MTC1

11. NEUTRAL

Connection for neutral

12. **PROTECTION EARTH**

Connection for earth

13. **MOTOR**

Connection for motor U (Open) V (Close) W (Common)

14. **MOTOR BRAKE**

Connection for 230Vac motor brake

15. **FLASH LAMP**

Connection for 230Vac flash lamp

16. **CLOSED**

Voltage-free contact (indicates door closed)

17. **OPEN**

Voltage-free contact (indicates door opened)

18. **EMERGENCY**

Cover emergency pushbutton.

19. **ENCODER**

Connector for Elektromaten/Kostal end limit switches

20. **ABS.ENC SAFETY CHAIN**

Jumper on right position inhibits the security inputs from the digital end limit switch.

21. **PUSHBUTTON INPUTS**

Connection for external buttons (Partial opening, Opening and Closing)

22. **LIMIT SWITCH INPUTS**

Connection for mechanical limit switches (Opening and Closing)

23. **SAFETY EDGE / STOP INPUTS**

Connection for 8k2 band / Stop pushbutton

24. **SAFETY CONTACT INPUTS**

Connection for photocells (Open and Close)

25. **24VDC OUTPUT**

Fixed output 700mA, shared with all 24v outputs

26. **24VDC OUTPUT /TEST**

Output for photocell tests, 700mA shared with all 24v outputs

27. **PROGRAMMING PUSHBUTTONS**

Open and close manoeuvre programming

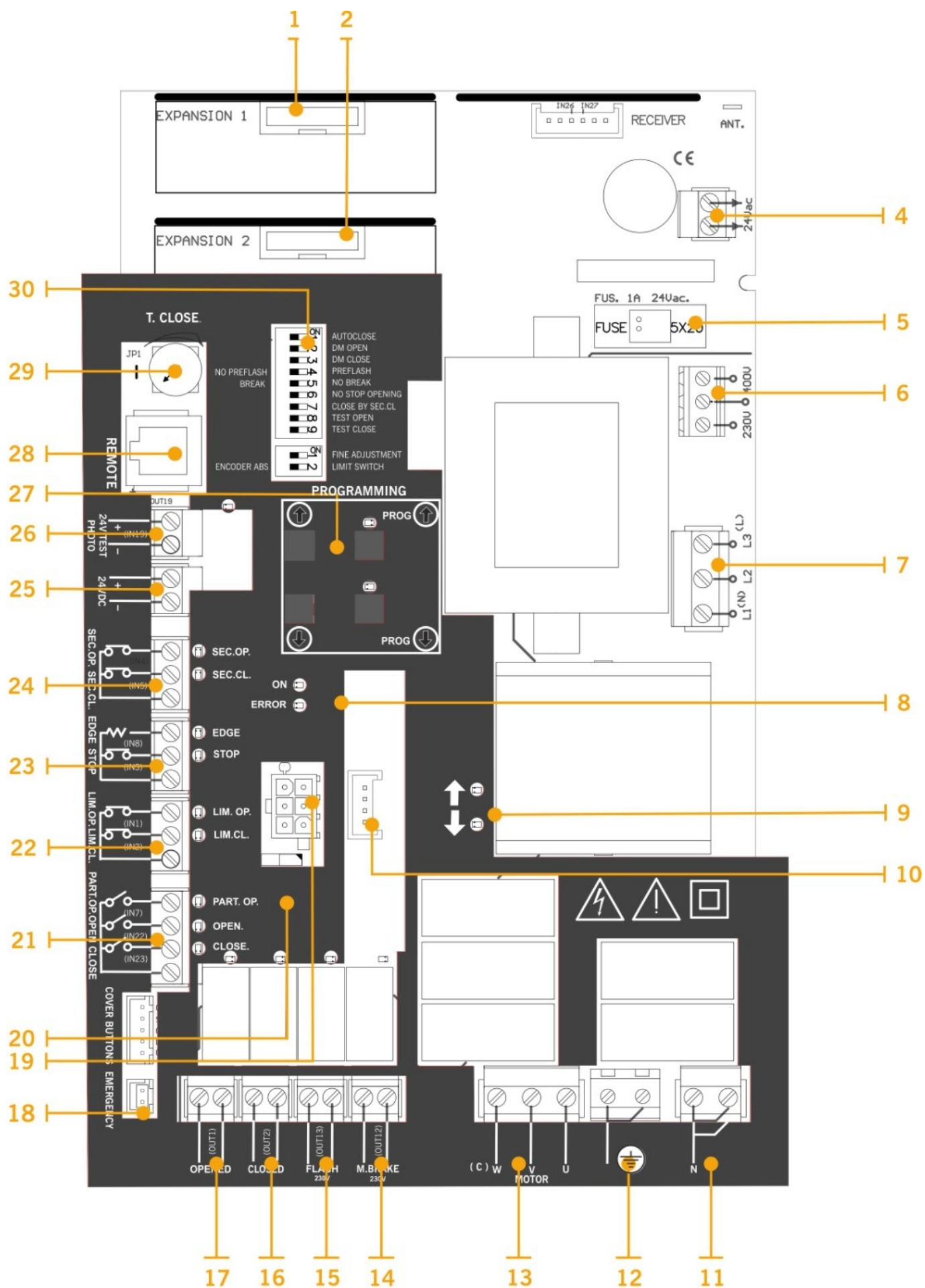
28. **REMOTE CONNECTOR**

Connection for VERSUS-PROG programmer

29. **AUTOCLOSING TIME**

1. Min=3s – Max=60s
2. Maximum position=No auto-close

30. **SELECTORS – OPTIONS**



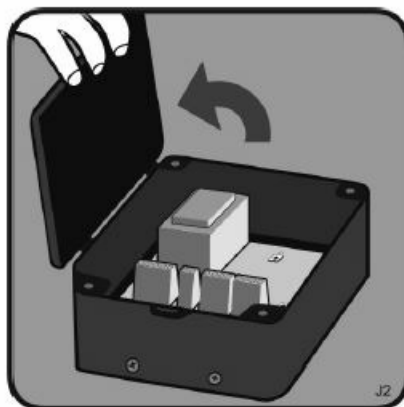
Installation

Install the control panel vertically on the wall at a height of 1.5m and following the assembly instructions.

UNSCREW



OPEN TOP



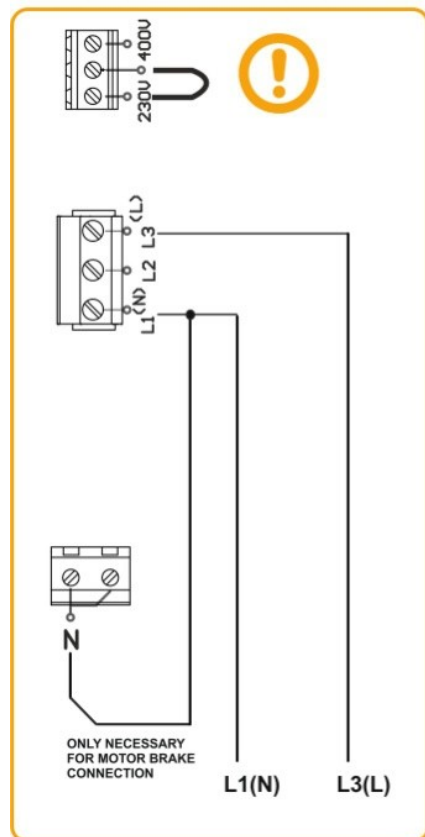
DRILL WALL



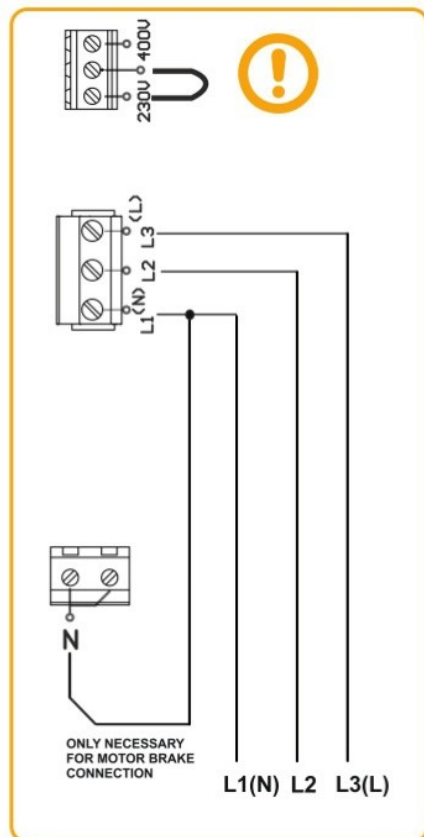
Connections

Power supply connection

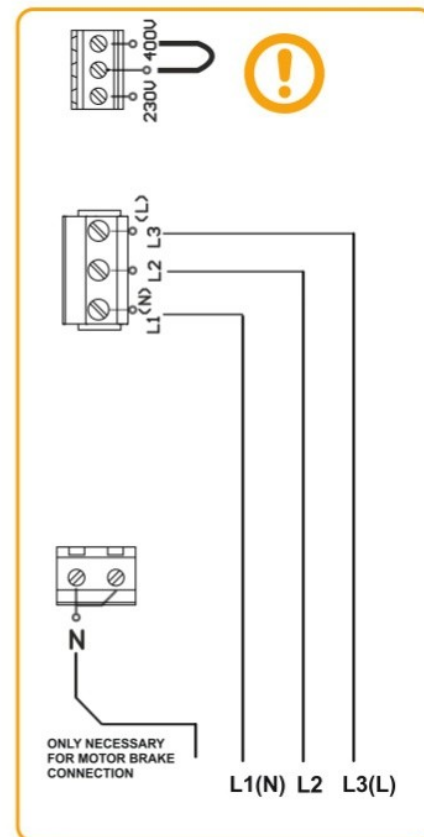
POWER SUPPLY 230V SINGLE PHASE



POWER SUPPLY 230V THREE PHASE

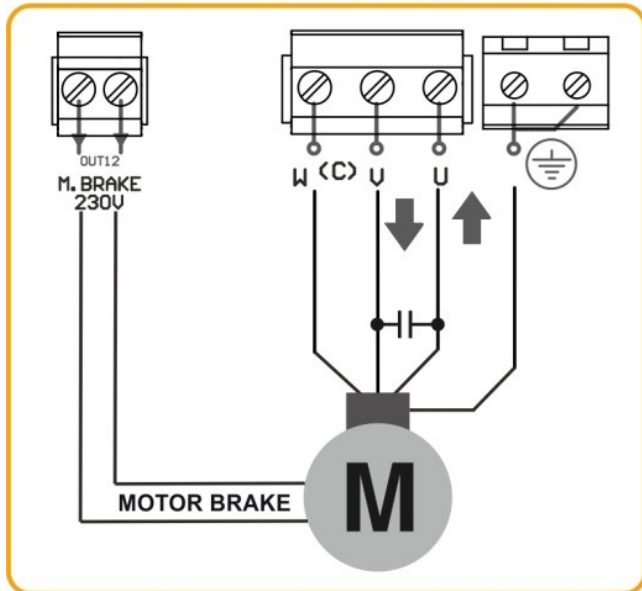


POWER SUPPLY 400V THREE PHASE

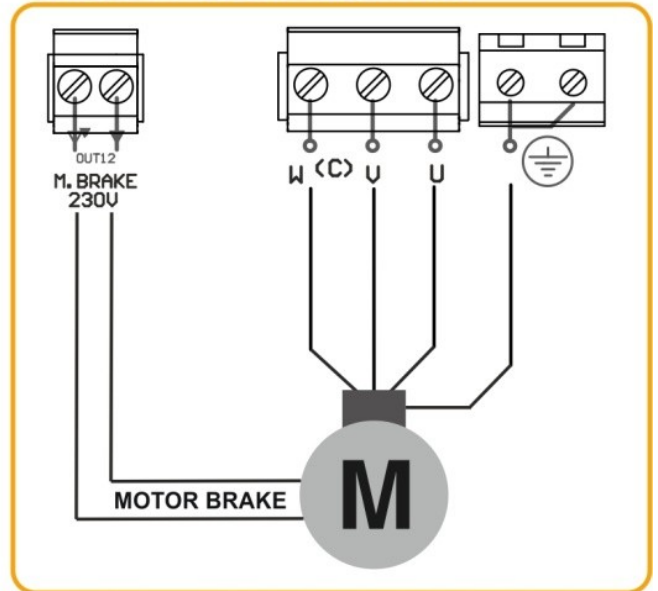


Motor connection

230V MONOPHASE MOTOR

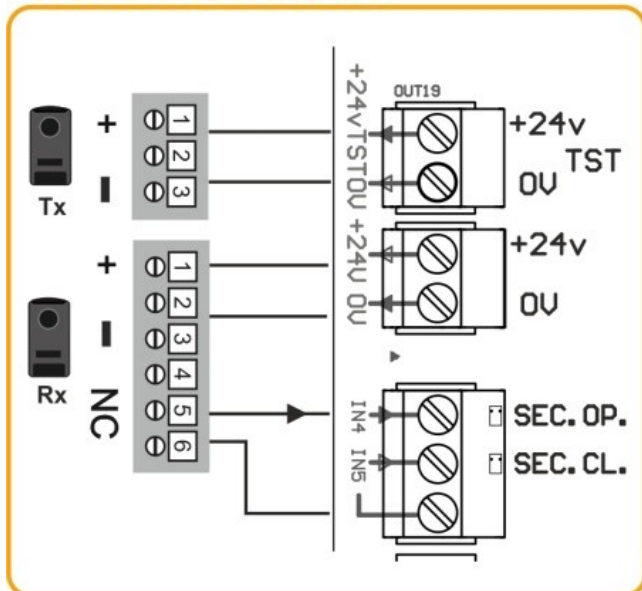


THREE-PHASE MOTOR

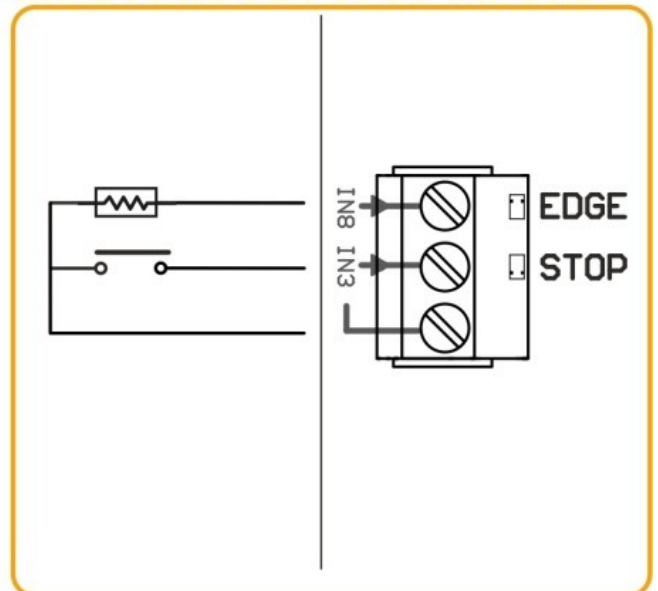


Input connection

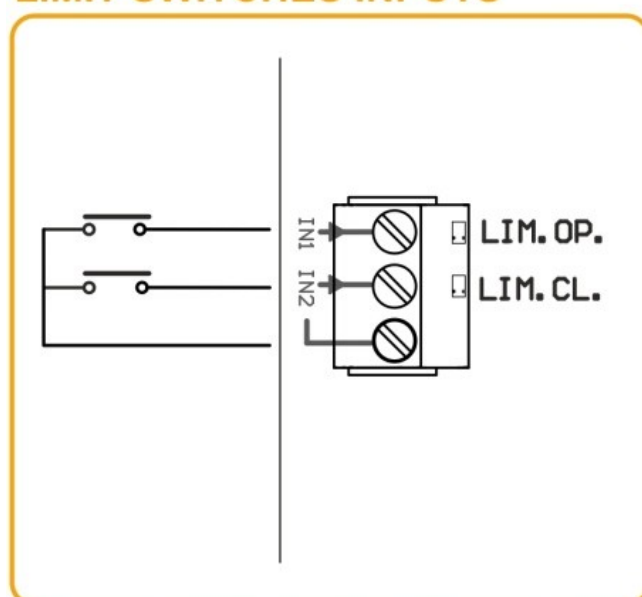
PHOTOCELL INPUT



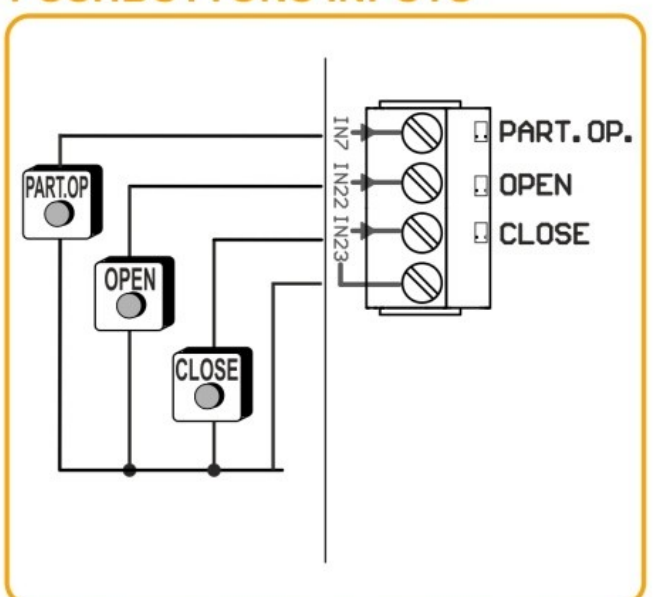
SAFETY EDGE / STOP INPUTS



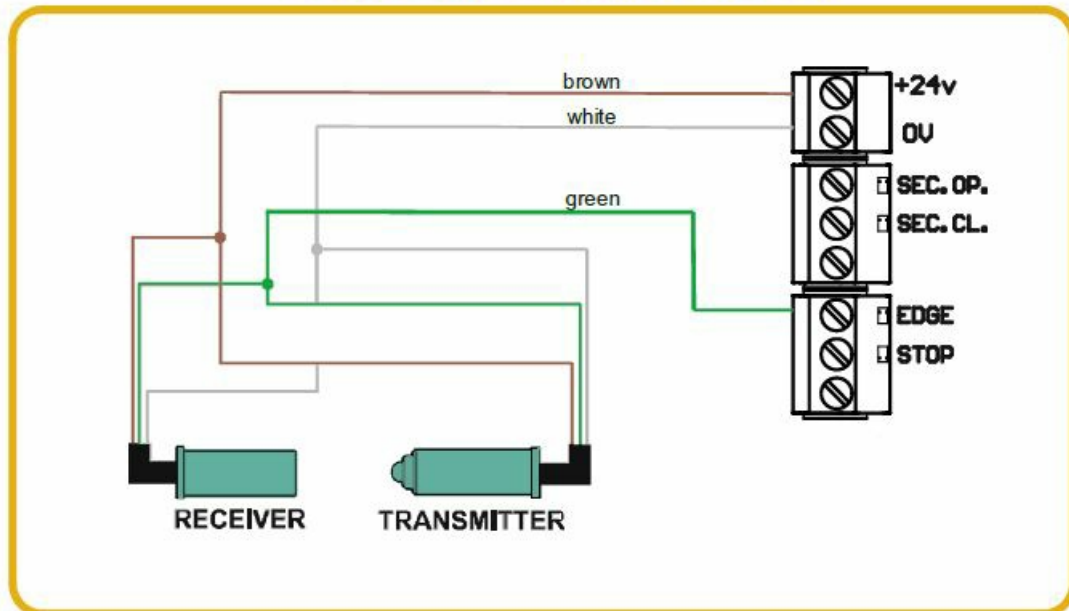
LIMIT SWITCHES INPUTS



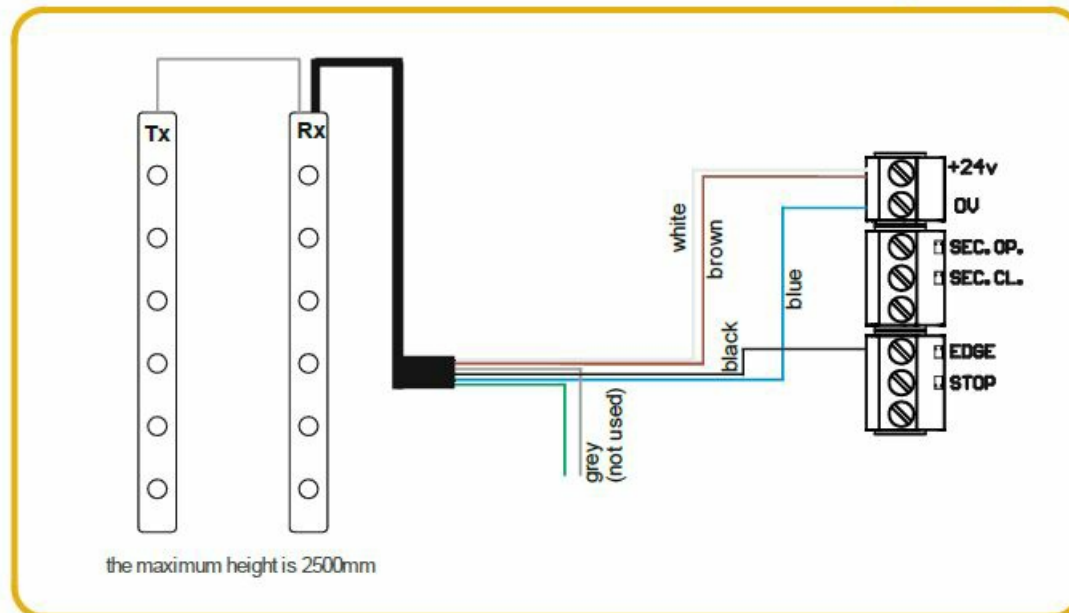
PUSHBUTTONS INPUTS



OPTO SAFETY EDGE INPUT

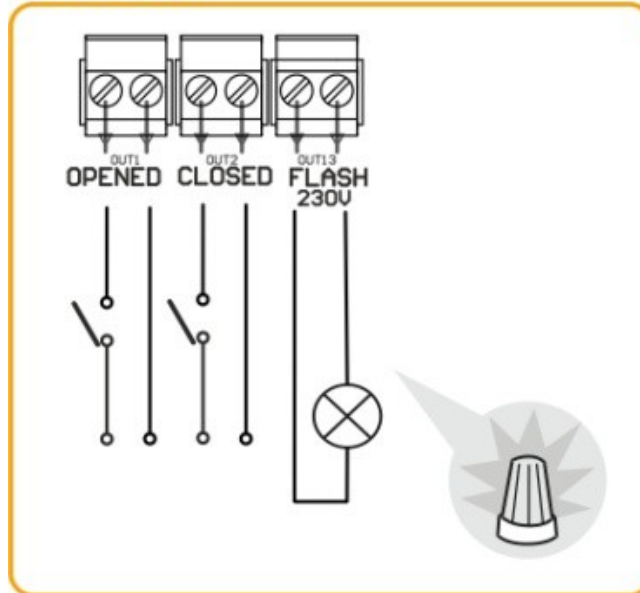


GridScan/PRO PHOTOCELL BARRIERS (FSS)



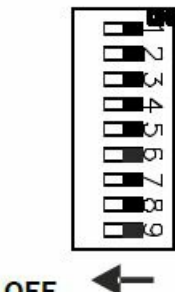
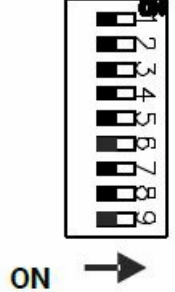


Output connection

OUTPUTS



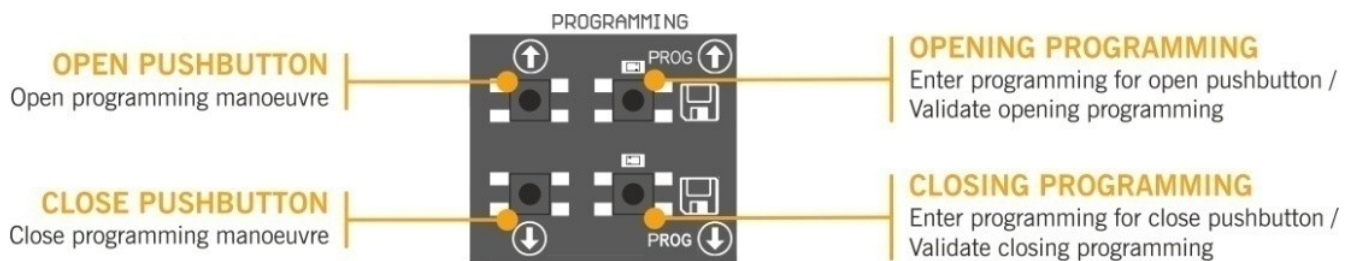
Option selector

By default all selectors leave the factory set to OFF.

 OFF		SELECTOR OPTIONS		 ON	
Do not closes automatically		1- AUTOCLOSE		Closes automatically	
Functioning without dead man opening	on	2- DM OPEN		Activates the dead man on opening manoeuvre	
Functioning without dead man closing	on	3- DM CLOSE		Activates the dead man on closing manoeuvre	
Without pre-flash		4- NO PREFLASH / PREFLASH		Activates the pre-flash function	
Activates motor brake function		5- BREAK / NO BREAK		Deactivates motor brake function	
Start button performs an stop opening	at	6- NO STOP ON OPENING		Start button opens until total opening	
Deactivates closing by security contact		7- CLOSE BY SEC.CL.		Activates closing by security contact	
Does not perform auto-test of opening security contact	the	8- TEST OP		Activates the contact auto-test	opening security
Does not perform auto-test of closing security contact	the	9- TEST CL		Activates the closing security contact auto-test.	
 OFF		SELECTOR OPTIONS		 ON	
Deactivates the fine adjustment function		1- FINE ADJ		Activates the fine adjustment function (only functioning with digital end limit switches)	
Activates functioning by digital end limit switches connector (ENCODER connector)		2- ENCODER ABS/ LIMIT SWITCH		Activates functioning by mechanical limit switches input	

Programming



- Before powering up the panel, leave the door in half way.
- Power up the control panel and proceed to program it.
- When programming, it is preferable to make medium and/or long runs to short ones (in order to improve hysteresis and inertia).







Checking motor direction

1. Turn the Options 2 selector to the ON position
2. Press the Open button on the cover and check that the door opens.
3. If it fails to open, disconnect the power supply and swap over the wires to the motor.





Manoeuvre programming with digital end limit switch (ENCODER).

- Turn the Options 2 of the Options 2 selector to the OFF position
- Only the buttons   on the board can be used, and these will function in dead man mode.

PROGRAMMING FOR OPENING

1. Press the PROG button  for 3 seconds, the indicator light will come on.
2. Position the door in the door open point using the buttons  . It is advisable to make long runs in order to ensure a correct adjustment.
3. Once the door is in the desired "door opened" position, press the PROG  button to validate the "door opened" position. The indicator light will flash a number of times and then go out.

PROGRAMMING FOR CLOSING





1. Press the PROG  button for 3 seconds, the indicator light will come on.
2. Position the door in the door closed point using the buttons  . It is advisable to make long runs in order to ensure a correct adjustment.
3. Once the door is in the desired "door closed" position, press the PROG  button to validate the "door closed" position.
4. The indicator light will flash a number of times and then go out.

Fine adjustment (for programming with absolute encoder)





Once the manoeuvre has been programmed, a fine adjustment of the programmed "door open" and "door closed" position can be made.

Situate Option 1 of the Options 2 selector in the ON position. The indicator lights will flash continually. Door is not moved with this selector in ON position.

MODIFYING THE “DOOR OPENED” POSITION

1. Press the PROG  button. The indicator light will come on.
2. Press the  or  button to increase or decrease the “door open” position. Each press will be approximately equivalent to 1 cm (this value depends on the absolute encoder resolution).
3. Once the “door opened” position has been adjusted, press the PROG  button to validate the “door opened” position”. The indicator light will flash a number of times and then go out.

MODIFYING THE “DOOR CLOSED” POSITION



1. Press the PROG  button. The indicator light will come on.
2. Press the  or  button to increase or decrease the “door closed” position. Each press will be approximately equivalent to 1 cm (this value depends on the absolute encoder resolution).
3. Once the “door closed” position has been adjusted, press the PROG  button to validate the “door closed” position”. The indicator light will flash a number of times and then go out.

Situate Option 1 of the Options 2 selector in the OFF position. The indicator lights will turn off.



Manoeuvre programming with limit switches

- Turn the Options 2 of the Options 2 selector to the ON position
- The limit switches need to be adjusted before programming, and the door positioned in the “door closed” position.

PROGRAMMING FOR OPENING

1. Press the PROG  button for 3 seconds. The indicator light will come on.
2. Press the Open button . The door will open automatically until it encounters the opening limit switch.

PROGRAMMING FOR CLOSING

3. Press the PROG  button for 3 seconds. The indicator light will come on.
4. Press the Open button . The door will close automatically until it encounters the closing limit switch
5. End of programming, the indicator light will flash a number of times and then go out.

Partial manoeuvre programming

- Bridge the Partial opening input IN7 and proceeds to programme according to 6.2 or 6.4 as desired.
- In this case, the “door opened” position will be located at the half way point of the run

Maintenance








Is it working?

Once the control panel has been installed, check that all the system is working correctly.

Indicator light for possible faults in the panel cover

STATUS	INDICATION	SOLUTION
On continuously	The panel is powered up	—
1 flash every 3 secs	Error or activation of Radioband/safety edge	Check that no obstacle has been detected and check the safety device connection
2 flashes every 3 secs	Error or activation of Close Photocell	Check that no obstacle has been detected and check the safety device connection
3 flashes every 3 secs	Error or activation of Open photocell	Check that no obstacle has been detected and check the safety device connection
4 flashes every 3 secs	Absolute encoder error	Check the absolute encoder connection
Continuous flashing	Emergency stop or Stop activated	Check that the STOP input has been activated

Indicator light for possible faults, LED ERROR

	ERROR	LED ERROR	INDICATION	SOLUTION
 02	INTERNAL ERROR	10 slow flashes 2 quick flashes	Internal error	Consult the technical service
 09	MAX. PROG. TIME	10 slow flashes 9 quick flashes	The maximum permitted programming time has been exceeded	Program a shorter time manoeuvre than the maximum permitted
 12	CLOSING BAND ERROR	1 slow flashes 2 quick flashes	Closing safety band error	Check the closing safety band connections
 13	OPENING BAND ERROR	1 slow flashes 3 quick flashes	Opening safety band error	Check the opening safety band connections
 19	CLOSE TEST ERROR	1 slow flashes 9 quick flashes	Closing safety contact autotest error	Check that the device connected to the closing safety contact is in good condition and correctly installed
 6	STOP	2 slow flashes 6 quick flashes	The panel has stopped due to a STOP or due to an activated encoder STOP	Check that the STOP input has been activated
 0	RBAND DOES NOT EXIST	3 slow flashes 10 quick flashes	The panel had been programmed with RBAND and it is no longer there	Re-program the panel without RBAND or connect the RBAND with which the panel had been

programmed			
1	RBAND NC IN PROG	3 slow flashes 1 quick flashes	The panel has not been Re-program the panel with the programmed with RSEC3 RSEC3 card connected
2	FC NOT LEARNT	3 slow flashes 2 quick flashes	Error in limit switches Check the motor's internal limit switches
9	PANEL LOCKED	3 slow flashes 9 quick flashes	An attempt has been made Enter the password with the V- to enter programming with DPLAY or VERSUS-PROG to unlock the panel locked the control panel
41	ENCODER ERROR	4 slow flashes 1 quick flashes	No absolute encoder found Check absolute encoder connection. or the encoder itself is returning an error

In case of any safety error, the door can be moved keeping pressed the or buttons or any other input controls.

Using the equipment


- Designed for the automation of rapid flexible doors in accordance with the general description. Not guaranteed for other uses.
- The manufacturer reserves the right to alter equipment specifications without prior notification.

EC Declaration of Conformity

- JCM TECHNOLOGIES, SA hereby declares that the product I20EU complies with the relevant fundamental requirements of the Machine Directive 2006/42/EC as well as with the Directives 2014/30/EU on electromagnetic compatibility and 2014/35/EU regarding low voltage whenever its usage is foreseen; and with the 2011/65/EU RoHS Directive.
- See website www.jcm-tech.com/en/declarations

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Documents / Resources

	Quantek 20EU Three Phase Control Panel [pdf] User Manual 20EU Three Phase Control Panel, 20EU, Three Phase Control Panel, Phase Control Panel, Control Panel, Panel
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References

- www.jcm-tech.com/en/declarations