Original guide

Revision 1.1 *2026*

OPERATION AND MAINTENANCE MANUAL. PART II.
ELECTRICAL CONNECTION OF ROAD BLOCKERS

for «OPTIMUS 50 BM» Boom Barriers RB392-05 with BMDrive mechanism

Electronic control unit RB130

Office and Production site:
14 Promyslova str., 02099, Kyiv, Ukraine,
E-mail: sales@tiso.global

Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

Contents

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global

Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

INTRODUCTION

Installation and connection of the barriers to the power supply network, as well as maintenance of the barriers, must be carried out only by certified specialists, strictly following electrical and mechanical safety rules during operation!

Before installation, connection, commissioning, or maintenance of the barriers, it is essential to carefully read this manual!

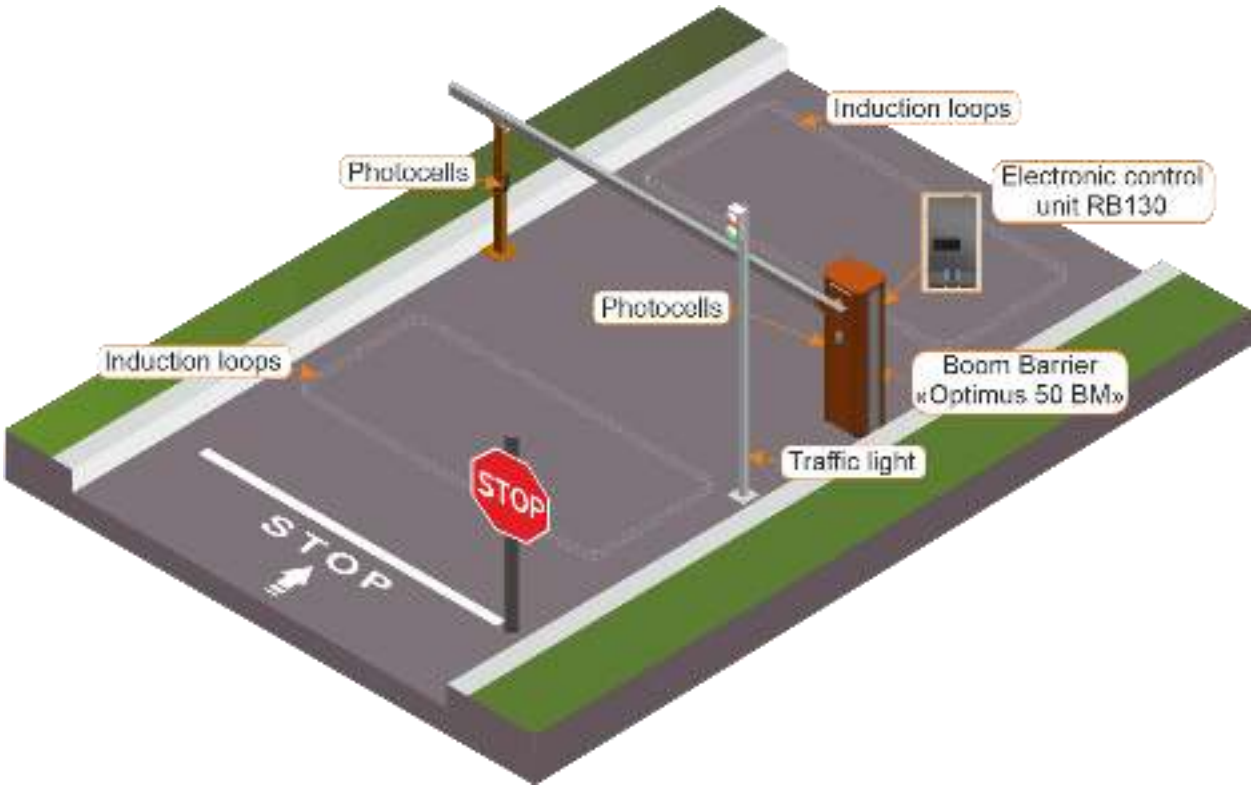


Fig.1. Access control system for a protected area

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global

Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

1. DESCRIPTION OF THE MAIN CONTROL COMPONENTS AND ELECTRICAL PARTS OF THE ROAD BLOCKER

1.1 Purpose and operation of the main control components and electrical parts of the barrier.

The barrier is a component of the security system designed to prevent unauthorized vehicle access to the territory. It is driven by the BMDrive mechanism, which is located inside the barrier housing.

The electronic control unit (ECU) of the barrier is a control device equipped with a programmable logic controller and additional electrical components. It is intended for controlling the barrier and monitoring its moving parts.

The main component of the ECU RB130 is the universal programmable logic controller RB390. This controller includes a power section for controlling the BLDC motor. The RB390 is equipped with input terminals for control signals, infrared sensor signals, and induction loop controller signals.

Electronic control unit RB130

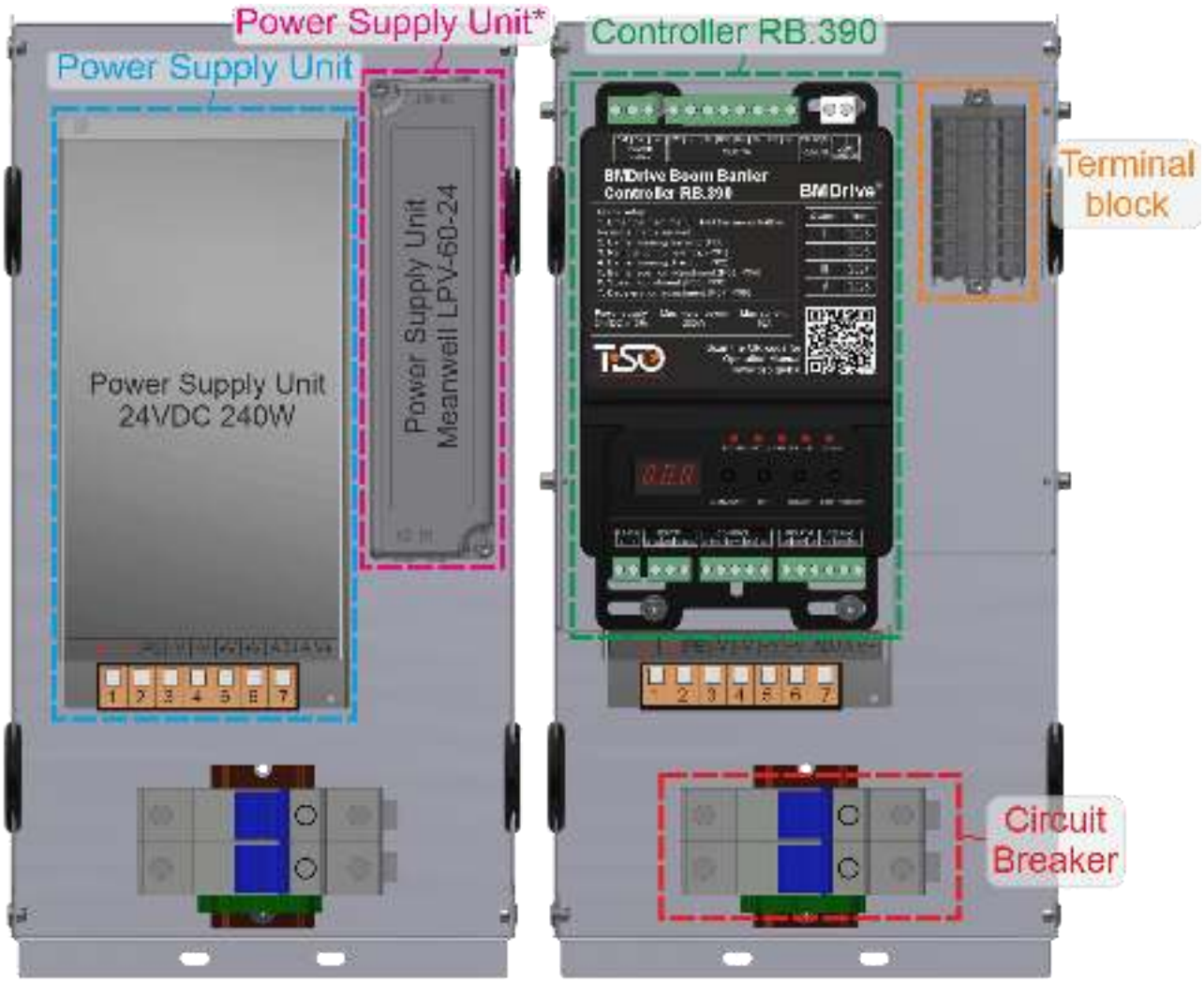


Fig.2. Main components of the RB130 electronic control unit

*Optional**

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global

Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

Table 1 - Description of the main components of the ECU

№	*Name of the block (terminal)*	*Function*
1	Controller RB390	Controller for barrier operation and configuration
2	Power Supply Unit	Main power supply 24VDC 240W
3	Power Supply Unit for boom arm illumination*	Additional power supply Meawell LPV-60-24
4	Terminal block	Terminal block for connecting the boom arm illumination
5	Circuit breaker	Residual current circuit breaker

**Optional*

2. CONNECTION OF THE BARRIER AND EXTERNAL DEVICES TO THE ELECTRONIC CONTROL UNIT

The RB130 Electronic Control Unit (ECU) is a metal box located inside the barrier housing.

The RB130 ECU is connected to a 230 V AC power supply network through a differential circuit breaker with overload protection and RCD (residual current device).

Control signals (for example, from an access control system) are also connected to the control unit:

- Wired industrial remote control unit (*Remote Control Unit, AUIA.112-30*) — connected to the **RB390** controller **(CONTROL)**.

And output (actuating) devices:

- Traffic light — connected to **RB390 (RELAY-1)**.
- Induction loop controllers — connected to **RB390 (SENSOR)**.
- Photocells — connected to **RB390 (SENSOR)**.

The electrical schematic diagram of the barrier with the RB130 control unit is provided in **Annex 1.**

2.1 Connecting the Electronic control unit to the Power Supply

After completing all main connections to the electronic control unit, the main power cable must be connected and voltage applied by switching on the main differential circuit breaker.

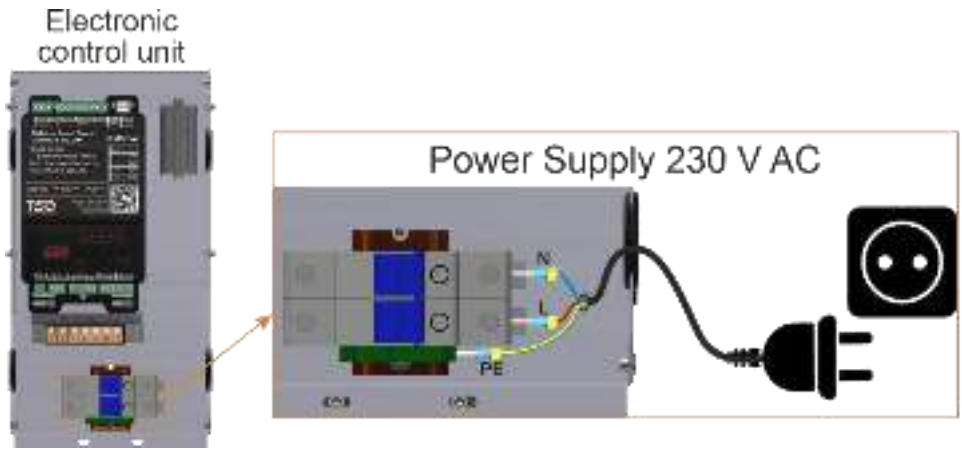


Table 2 – Power connection terminals designation

Wire	Power Supply
1	Power Supply 230V Input L
2	Power Supply 230V Input N
3	Power Supply 230V Input PE

Fig. 3 – Connection diagram of the ECU to the power supply

After supplying power to the barrier, it is necessary to perform the **Fast Adjusting process** to ensure its correct operation (*for more details, see **Section 3.5. Fast Adjusting Process***).

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global
Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

2.2 Connection of the Access Control System (ACS)

In addition to the remote control, any access control system (ACS) can be connected to the barrier, for example, card readers, access buttons, or biometric devices. The ACS is connected to the **RB390 controller (CONTROL)** in the ECU.

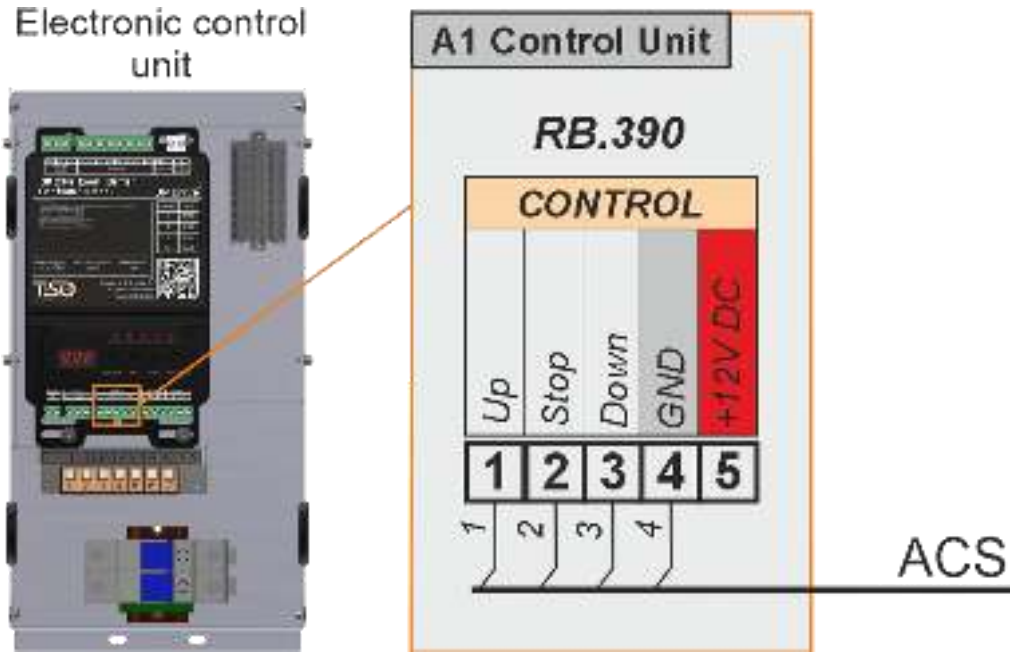
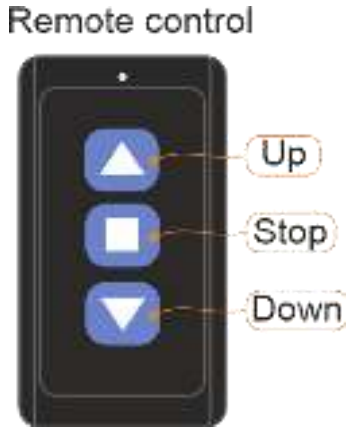


Fig. 4 – Connection of the Access Control System (ACS) to the ECU

2.3 Programming the wireless remote control



Learn the first remote control: Learn the keys in the order like: **ON → OFF → STOP.**

From the second remote control, you only need to press any of the buttons of **ON, OFF** and **STOP** for more than 1 second.

1. Entering remote control learning mode:

- Enter the main menu (press and hold the **Menu** button for 2 seconds).
- Press the **OPEN/+** or **CLOSE/-** key to turn to the **P01** menu.
- Press the **Enter** button — the display will show **"000"**, indicating that the current controller has not learned any remote control.

Fig. 5 – External view of the wireless remote control

1.1. Learning the first remote control:

Short press the **"OPEN/+"** key.

1) The first number of the digital tube will start blink:
- then press the **OPEN** button on the remote control for more than 1 second;
- the buzzer rings, indicating that the **OPEN** key has learned.

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global
Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

2) Then the second number of the digital tube will start blink:
- then press the **CLOSE** button on the remote control for more than 1 second;
- the buzzer rings, indicating that the **CLOSE** key has been learned.

3) Then the third number of the digital tube will start blink:
- then press the **STOP** button on the remote control for more than 1 second;
- the buzzer rings, indicating that the **STOP** key has been learned.

At the same time, the digital tube is displayed as "001", indicating that the first remote control has been learned.

1.2. Learning the second and subsequent remote control:
- Short press the **"OPEN/+"** key;
- The three numbers of the digital tube turn around and blink;
- Then press any key of the **"ON, OFF, STOP"** on the remote control;
- The buzzer rings, the digital tube displays "002", indicating that you have learned the second remote control.

Click this to continue learning remote controls, up to 50 remote controls can be learned.

2.4 Connection of the Remote Control AUIA.112-30 to the ECU (OPTION)

The wired industrial remote control 112-30 can be used to operate the barrier.

Fig. 6 – External view of the remote control AUIA.112-30

1. Raising button -Barrier Boom Up Button

To raise the barrier boom automatically, press the white **"UP"** button once.

2. Lowering button - Barrier Boom Down Button

To lower the barrier boom automatically, press the green **"DOWN"** button once.

3. Stopping button - Barrier Boom Stop Button

To stop the raising or lowering of the barrier boom, press the red **"STOP"** button.

Table 3 – Remote control connection terminals designation

Wire	RB.390 – CONTROL
1	1. Up
2	2. Stop
3	3. Down
4	4. GND

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global
Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

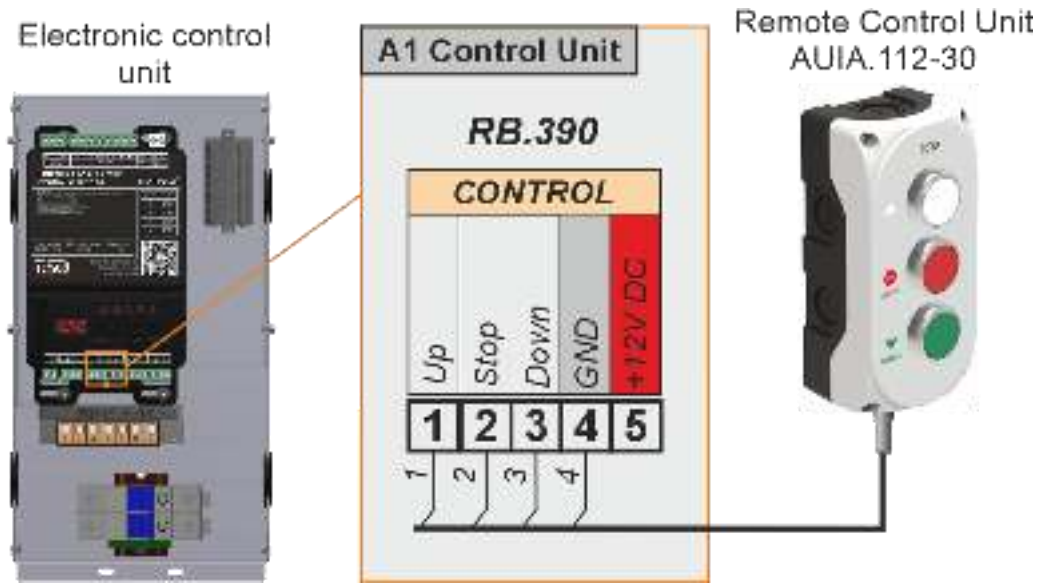


Fig. 7 - Connection of the remote control AUIA.112-30 to the ECU

2.5 Connection of RG (red-green) two-sided arm lighting (OPTION)

The arm lighting is connected from the terminal block located inside the electronic control unit. The power cable is routed from the ECU through the barrier housing and the arm mounting elements into the internal cavity of the arm. Inside the arm, the power cable is connected to of the LED strip.

When routing the cable, make sure there is no tension, pinching, or possible damage to the insulation.

After connection, check that the cable is properly laid inside the arm and verify correct operation of the lighting.

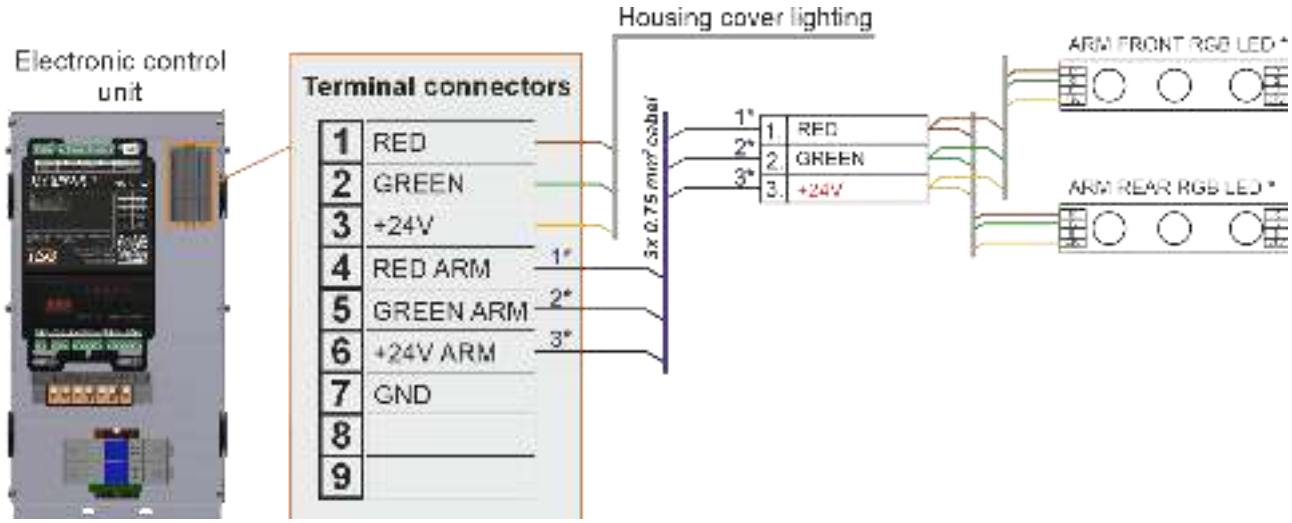


Fig. 8 – Arm lighting connection

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global
Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

2.6 Connection of the red arm bumper lighting (OPTION)

The arm bumper lighting is connected from the terminal block located in the electronic control unit. The power cable is routed from the ECU through the barrier housing and the arm mounting elements into the internal cavity of the arm. Inside the arm, the power cable is connected to of the LED strip.

When routing the cable, ensure there is no tension, pinching, or possible damage to the insulation.

After connection, check that the cable is properly laid inside the arm and verify the correct operation of the lighting.

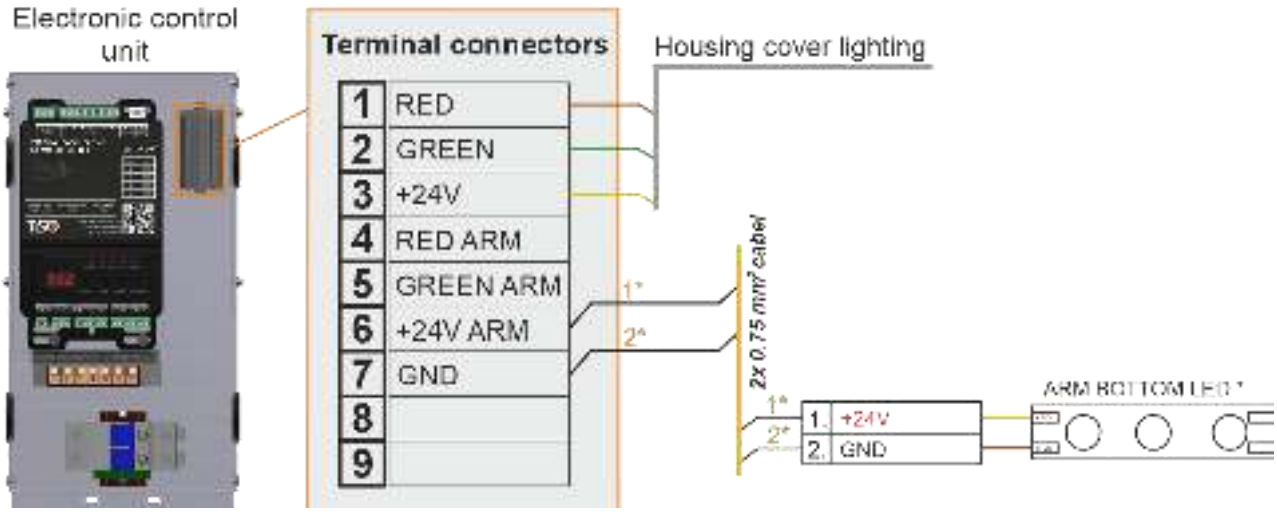


Fig. 9 – Connection of the arm bumper lighting

2.7 Protective induction loops (OPTION)

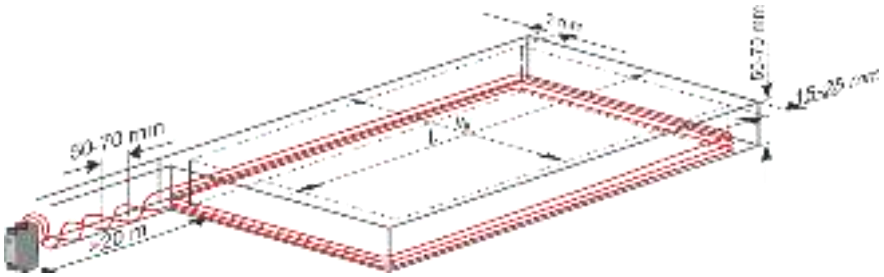
The Boom Barrier control unit may include additional option – **protective induction loops**.

One or two induction loops are installed in the road surface near the barriers, connected to the control unit, and used to prevent the barrier from closing.

Fig.10 – Induction Loops in design position

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global
Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

Induction Loops in the Design Position



If a Road Blocker has **induction loop** option, then control unit contains one or two controllers of induction loops **Safety Loop Detector A EMX ULTRADIN*.**

Kit may also include some cables **SIF1.0** for preparation of induction loops. Maximum allowable distance from induction loop to control unit is **20 m**.

Induction loop responds to vehicle metal and at its location there should not be metal in road surface. Minimum distance from induction loop to the Road Blocker metal parts is **500 mm**.

A trench of **50-70 mm** depth and **15-25 mm** width according to induction loop size is made for installation of induction loop in road surface. A trench is also made from the edge of induction loop to control unit.

Induction loop is **3-4** turns of cable **SIF1.0** to be installed in trench the ends of which are twisted between them and connected to induction loop controller of control unit. Cable **SIF1.0** can be laid in plastic corrugated tube or plastic pipe. After induction loop is laid in pipe it is filled with sand and covered with cement or asphalt grout.

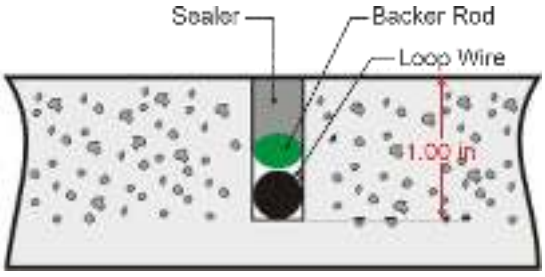


Table 4 - Contains recommended induction loop size, number of turns and vehicle detection height

Loop size length	Loop size width	Turns	Detection height feet
2 (0.61m)	2 (0.61m)	5	1.6 (0.488m)
2 (0.61m)	4 (1.22m)	4	1.6 (0.488m)
2 (0.61m)	6 (1.83m)	4	1.6 (0.488m)
2 (0.61m)	8 (2.44m)	3	1.6 (0.488m)
2 (0.61m)	10 (3.05m)	3	1.6 (0.488m)
2 (0.61m)	12 (3.66m)	3	1.6 (0.488m)
2 (0.61m)	14 (4.27m)	3	1.6 (0.488m)
2 (0.61m)	16 (4.88m)	3	1.6 (0.488m)
2 (0.61m)	18 (5.49m)	3	1.6 (0.488m)
2 (0.61m)	20 (6.10m)	3	1.6 (0.488m)
4 (1.22m)	4 (1.22m)	4	3.2 (0.975m)
4 (1.22m)	6 (1.83m)	4	3.2 (0.975m)
4 (1.22m)	8 (2.44m)	3	3.2 (0.975m)
4 (1.22m)	10 (3.05m)	3	3.2 (0.975m)
4 (1.22m)	12 (3.66m)	3	3.2 (0.975m)
4 (1.22m)	14 (4.27m)	3	3.2 (0.975m)
4 (1.22m)	16 (4.88m)	3	3.2 (0.975m)
4 (1.22m)	18 (5.49m)	3	3.2 (0.975m)
4 (1.22m)	20 (6.10m)	3	3.2 (0.975m)

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global

Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

Continuation of the table 4

4 (1.22m)	22 (6.71m)	3	3.2 (0.975m)
4 (1.22m)	24 (7.32m)	3	3.2 (0.975m)
4 (1.22m)	26 (7.93m)	3	3.2 (0.975m)
4 (1.22m)	28 (8.54m)	3	3.2 (0.975m)
4 (1.22m)	30 (9.14m)	2	3.2 (0.975m)
4 (1.22m)	32 (9.75m)	2	3.2 (0.975m)
4 (1.22m)	33 (10.06m)	2	3.2 (0.975m)
4 (1.22m)	34 (10.36m)	2	3.2 (0.975m)
4 (1.22m)	36 (10.97m)	2	3.2 (0.975m)
4 (1.22m)	38 (11.58m)	2	3.2 (0.975m)
4 (1.22m)	40 (12.20m)	2	3.2 (0.975m)
6 (1.83m)	6 (1.83m)	4	4.8 (1.463m)
6 (1.83m)	8 (2.44m)	3	4.8 (1.463m)
6 (1.83m)	10 (3.05m)	3	4.8 (1.463m)
6 (1.83m)	12 (3.66m)	3	4.8 (1.463m)
6 (1.83m)	14 (4.27m)	3	4.8 (1.463m)
6 (1.83m)	16 (4.88m)	3	4.8 (1.463m)
6 (1.83m)	18 (5.49m)	3	4.8 (1.463m)
6 (1.83m)	20 (6.10m)	2	4.8 (1.463m)
6 (1.83m)	22 (6.71m)	2	4.8 (1.463m)
6 (1.83m)	24 (7.32m)	2	4.8 (1.463m)
6 (1.83m)	26 (7.93m)	2	4.8 (1.463m)
6 (1.83m)	28 (8.54m)	2	4.8 (1.463m)
6 (1.83m)	30 (9.14m)	2	4.8 (1.463m)
6 (1.83m)	32 (9.75m)	2	4.8 (1.463m)
6 (1.83m)	33 (10.06m)	2	4.8 (1.463m)
6 (1.83m)	34 (10.36m)	2	4.8 (1.463m)
6 (1.83m)	36 (10.97m)	2	4.8 (1.463m)
6 (1.83m)	38 (11.58m)	2	4.8 (1.463m)
6 (1.83m)	40 (12.20m)	2	4.8 (1.463m)
8 (2.44m)	4 (1.22m)	4	3.2 (0.975m)
8 (2.44m)	6 (1.83m)	4	4.8 (1.463m)
8 (2.44m)	8 (2.44m)	3	5.6 (1.71m)
8 (2.44m)	10 (3.05m)	3	5.6 (1.71m)
8 (2.44m)	12 (3.66m)	3	5.6 (1.71m)
8 (2.44m)	14 (4.27m)	3	5.6 (1.71m)
8 (2.44m)	16 (4.88m)	3	5.6 (1.71m)
8 (2.44m)	18 (5.49m)	2	5.6 (1.71m)
8 (2.44m)	20 (6.10m)	2	5.6 (1.71m)
8 (2.44m)	22 (6.71m)	2	5.6 (1.71m)
8 (2.44m)	24 (7.32m)	2	5.6 (1.71m)
8 (2.44m)	26 (7.93m)	2	5.6 (1.71m)
8 (2.44m)	28 (8.54m)	2	5.6 (1.71m)
8 (2.44m)	30 (9.14m)	2	5.6 (1.71m)
8 (2.44m)	32 (9.75m)	2	5.6 (1.71m)
8 (2.44m)	33 (10.06m)	2	5.6 (1.71m)

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global

Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

Continuation of the table 4

8 (2.44m)	34 (10.36m)	2	5.6 (1.71m)
8 (2.44m)	36 (10.97m)	2	5.6 (1.71m)
8 (2.44m)	38 (11.58m)	2	5.6 (1.71m)
8 (2.44m)	40 (12.20m)	2	5.6 (1.71m)

Two twisted ends of cable **SIF1.0** of each induction loop to be connected to terminals **"LOOP"** and **"LOOP"** of **Safety Loop Detector EMX ULTRADIN** induction loop controller of control unit.

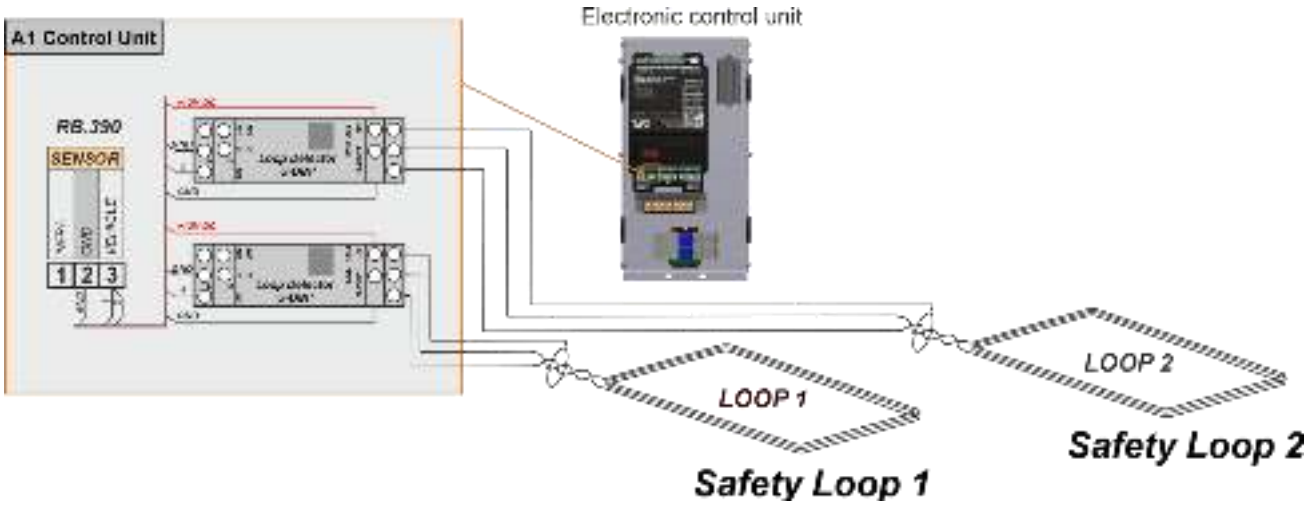


Fig. 11 - Connection of induction loops to the ECU

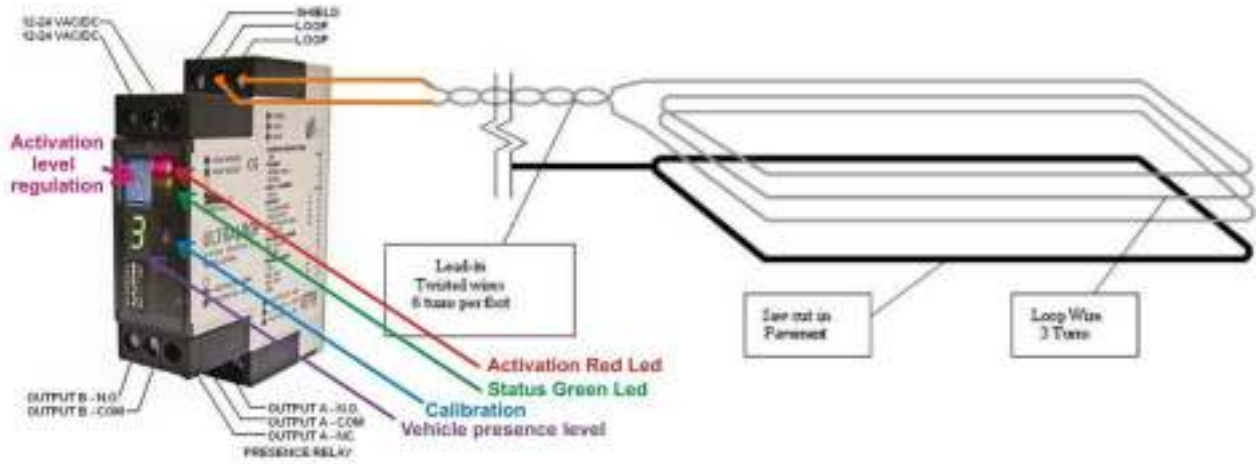


Fig.12 - Diagram of connection of induction loop to **Safety Loop Detector EMX ULTRADIN** induction loop controller of control unit

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global

Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

Terminal pin	Description
1	Shield – Earth Ground
2	Loop Connection
3	Loop Connection
4	Power 12-24 VDC/AC
5	Power 12-24 VDC/AC
6	No Connection
7	Output B – NO (normally open contact)
8	Output B – COM (common contact)
9	No Connection
10	Output A – NC (normally closed contact)
11	Output A – COM (common contact)
12	Output A – NO (normally open contact)

Fig.13 - Designation of induction loop controller connectors

After installing the induction loop, connecting it to the controller, and switching on the power, press the **"Reset"** button **(5)** and wait 10 seconds for the controller to calibrate.

Sensitivity setting (1) – the regulator position determines the vehicle presence level at which the detector is triggered. Typically, it is set to a value of 4–5.

ULTRAMETER display (4) – shows the sensitivity level when a vehicle is detected near the loop.

Red indicator (2) – indicates the presence of a vehicle on the loop.

Green indicator (3) – indicates that the detector is powered and operational.

DIP SWITCH (6) – switch for loop mode settings: Automatic Sensitivity Boost / Infinite Presence Mode / Delay Mode / Output B / Fail Safe Secure / Frequency Setting.

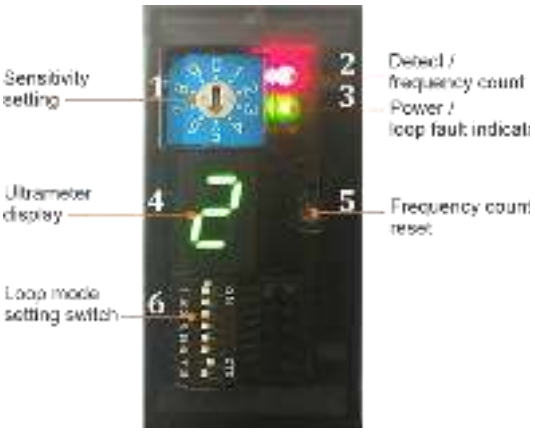


Fig.14 - Induction Loop Controller Designation

More details on induction loop controller **EMX ULTRADIN** can be found on the manufacturer's website by reference: https://www.emxaccesscontrolsensors.com/product/ultra-din/

2.8 Connecting the Traffic Light (OPTION)

The traffic light serves as an indicator of the blocker status. It is connected to the RB.390 controller in the control unit (ECU). Switching of such a traffic light is performed via the **RELAY-1** output.

Table 5 – Designation of Traffic Light connection terminals

Traffic Light Connection	RB.390 – RELEY-1
Color	
Red	1. Traffic light NO
Common +	2. COM
Green	3. Traffic light NC

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global
Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

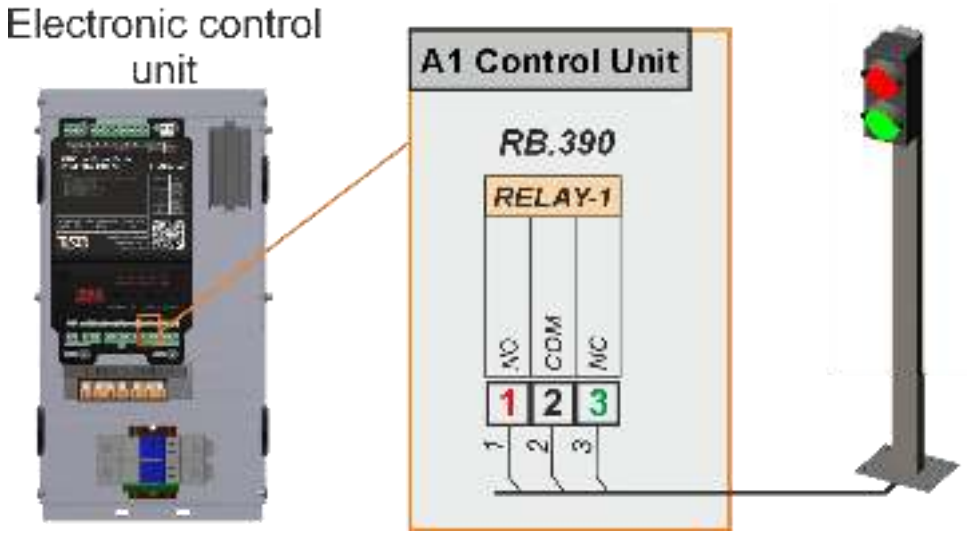


Fig. 15 - Connecting the Traffic Light

2.9 Connection of infrared photocells (OPTION)

Infrared photocells are designed to ensure safety during barrier movement. They prevent the barrier from closing if a person, vehicle, or other obstacle is detected within the sensing area. The photocells are connected to the RB390 controller in the barrier's ECU.

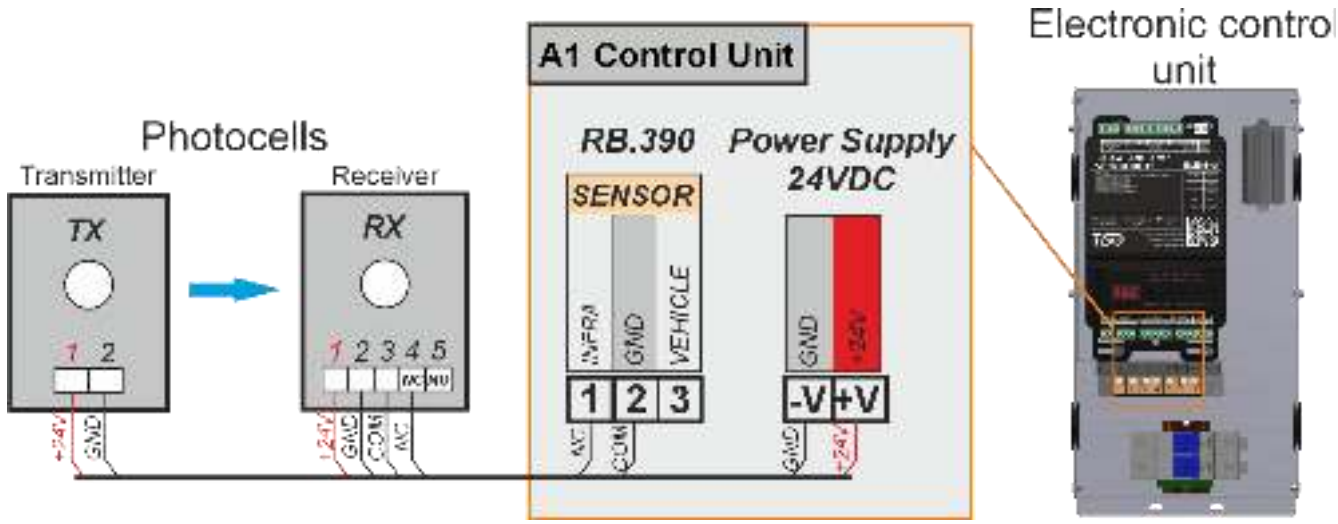


Fig. 16 - Connection of the photocells to the ECU

3. PCB.390 controller as a component of the electronic control unit

3.1 Description of the PCB.390 controller

The RB390 controller controls the operation of TISO automatic road barriers equipped with a BLDC mechanism.

Through the RB390 controller, it is possible to configure the main control parameters of the barriers and initiate operation. On the front panel of the controller, there is a display and four control buttons used to display the current controller status and access the settings menu. The PCB.390 controller is integrated into the electronic control unit.

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global
Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

3.2 Purpose of the RB390 controller

The purpose and terminal designations of the RB390 controller when used in RB130 electronic control units are shown in ***Fig. 17***.

Fig.17 - Terminal designations of the RB390 controller

NOTE

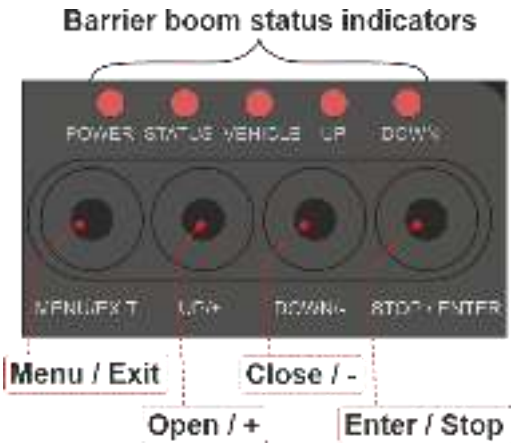
1) The relay output signal of this controller is passive contact and the maximum current allowed through the contact is 10A. Do not control high-power or high-voltage electrical equipment beyond the control ability of the contact.

2) Infrared sensor, induction loop controller, opening, stopping, closing and other input control signals are low level effective.

3) The 12V power output is used only as A signal power supply and can withstand 12V/0.15A load. To ensure the normal operation of the controller, do not connect external electrical devices beyond the power supply capacity of the power supply.

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global
Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

3.3. Description of key functions



1) Menu/Exit:

- Long press for more than 2 seconds to enter the menu;
- Long press more than 2 seconds to exit the menu;
- When setting menu parameters, if you do not want to save the changed parameters of the current menu, press this key to exit the current menu without saving the changed parameters.

2) Open /+ :

- Under normal working mode, this key is the opening key;
- In menu mode, this key is scrolling up and adding key.

3) Close /-:

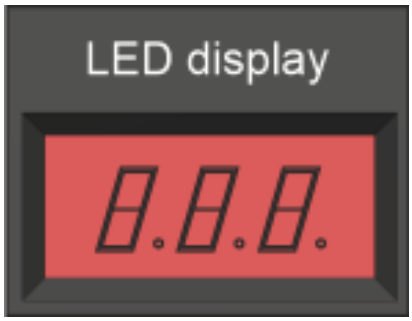
- Under normal working mode, this key is the closing key;
- In menu mode, this key is scrolling down and reducing key.

4) Enter/stop:

- In normal working mode, this key is the stop key;
- In menu mode, this key is the Enter and save key;
- Press this key in the main menu to enter the current menu;
- When setting menu parameters, press this key to save the currently changed parameters.

3.4. Extinguish screen energy-saving mode and wake up

After power-on, the LED digital tube will display normally. If there is no pressing any key within 3 minutes, the LED digital tube display will darken. If there is still no pressing key after 5 minutes, the LED digital tube will turn off and enter the energy-saving mode. In off-screen energy saving mode, all functions are normal except there is without any display on the LED digital tube. If you need to wake up the display, short press the Menu key.

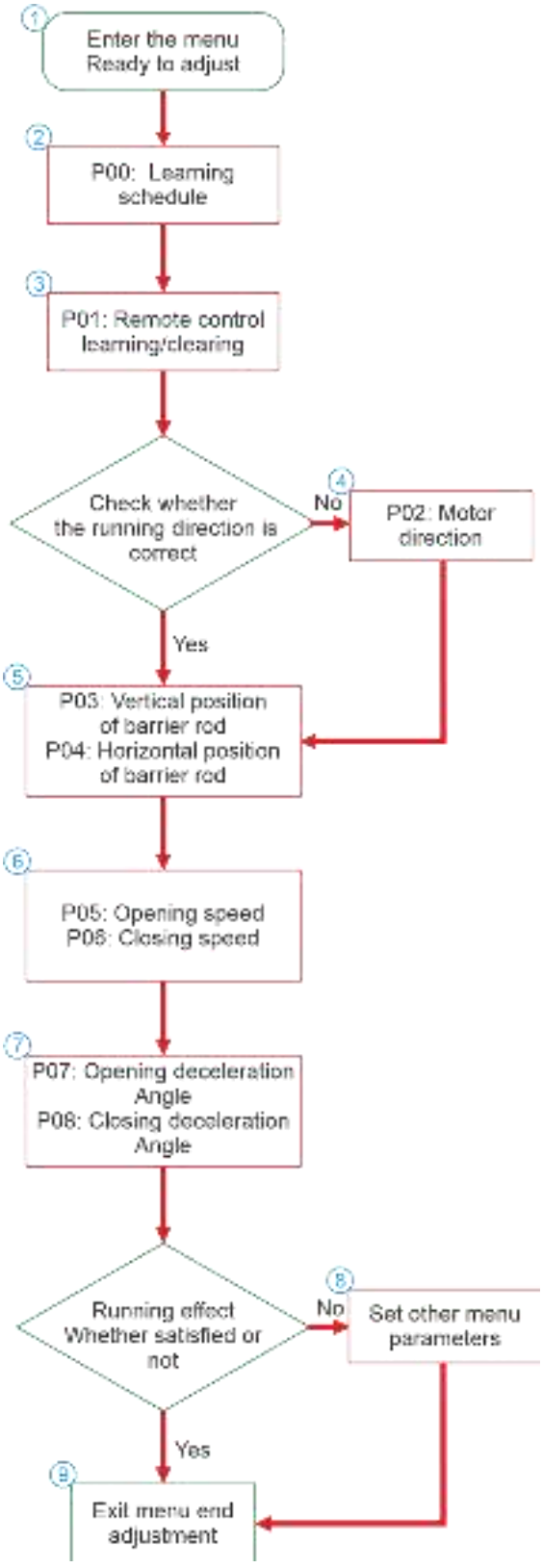


Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global

Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

3.5. Fast adjusting guidelines

Fast adjusting process



Brief description of the adjusting process

1. Long press the menu key for more than 2 seconds to enter the main menu and the digital tube displays "Pxx"

2. Press OPEN /+ or CLOSE /- button, turn to the "P00" menu, press the Enter button to enter the menu, 000 will be displayed press OPEN /+ or CLOSE /- button. After the barrier rod automatically runs a round trip between the open limit bar and close limit bar, there is" OFF" display and indicate that the learning trip has been completed.

3. Turn to the P01 menu and learn the remote control: Alter learning the remote control, in the menu mode you can directly remote control the gate, check whether the remote control learning and whether the running direction is correct:

4. If the running direction of the gate is correct the next step can be set directly. If the running direction is incorrect, turn to the P03 menu, change the parameter value to 000 or 001, and change the motor direction;

5. Sot the menu parameters of P03 and P04 (you can first open and close the gate with the remote control to see whether the lever is vertical or horizontal, if no problem, you can skip this step directly):

a) Turn to the P03 menu, press the "Enter" button to enter the parameter setting. Shake the motor handle to make the brake lever vertical press the ENTER button to save.

b) Turn to the P04 menu, press the "Enter" button to enter the parameter setting, press the “on” or “off” button of the controller or shake the motor hand wheel to make the barrier rod level, then press the ENTER button to save.

6. First, use the remote control to open and close the gate to see whether the speed of the gate is appropriate. If it needs to be set, turn to the P05 or P06 menu, press the "Enter" button to enter the parameter setting, and change the corresponding parameters (the larger the value the faster the speed). press the Enter button to save, and then press the remote control to see whether the changed speed is appropriate.

7. If you feel that the speed of the gate is too slow, slow down too early or too fast, slow down too late, then turn to the P07 or P08 menu, press the ENTER button to enter the parameter setting, and change the corresponding parameter

- the larger the value, the larger the deceleration angle,
- the earlier the deceleration, the slower the speed;
- the smaller the value, the smaller the deceleration angle,
- the later the deceleration, the faster the speed),

press the "Enter" button to save, and then press the remote control to see the changed reduction Whether the speed Angle is appropriate. In general, the deceleration angle can be set larger than that of the small movement (the default value is 60) and the deceleration Angle can be set smaller than that of the large movement.

8. In general, only need to set P05, P06, P07. P08 menu parameters, you can meet the running speed requirements of most users: for higher speed requirements. you can adjust other speed related parameters, which will not be described in detail here.

9. After Adjusting, long press the menu button for 2 seconds.

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global

Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

3.6. Menu list

To simplify parameter configuration, the controller menu is divided into motion parameters and function parameters as two main sections. This list provides only a basic overview of the menu items. For detailed descriptions of the functions, please refer to Section 8, menu functions, in the document ***«RB390 DC Controller Configuration».***

Table 6

Menu	Movement parameters menu	Default value
P00	Learning	---
P01	Remote control learning/clearing	---
P02	Motor direction	000
P03	Arm vertical position	---
P04	Arm horizontal position	---
P05	Opening speed	060
P06	Closing speed	060
P07	Opening deceleration angle(stroke)	060
P08	Closing deceleration angle(stroke)	060
P09	Speed of opening till vertical	000
P10	Speed of closing till horizontal	000
P11	Strength of opening till vertical	002
P12	Strength of opening till horizontal	002
P13	Buffering angle of opening till vertical	000
P14	Buffering angle of closing till horizontal	000
P15	Response speed of opening	005
P16	Response speed of closing	005
P17	Smoothness of opening	070
P18	Smoothness of closing	070
P19	Emergency stop buffer time	000
P20	Speed of searching zero(limit)	050
P21	Timeout closing speed	001
P22	Overcurrent protection	008

Menu	Function parameter menu	Default value
F00	Parameter saving	000
F01	Parameter loading	000
F02	Turn off remote control	000
F03	Turn off the beep	000
F04	Run times view	000
F05	Sensing values view	000
F06	Light sensing threshold setting	100
F07	Anti-freezing operation temperature	-40
F08	Anti-freezing operation time	000
F09	Windproof opening angle	000
F10	Anti-smash port input definition	000
F11	Reserve	---
F12	Relay 1 output definition	000
F13	Relay 2 output definition	001
F14	Communication baud rate	000
F15	Correspondence address(device number)	000
F16	Test mode selection	000
F17	Power supply type selection	000
F18	Ground sense anti-smash mode	000
F19	Fleet mode selection	000
F20	Display mode selection	000
F21	Opening count mode	000
F22	No car time-out closing	000

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global

Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

P23	Distress sensitivity	000
P24	Motor speed	015
P25	Mode of searching zero (limit)	000
P26	Closing till horizontal lock gate	000
P27	Learn the different types of remote controls	---
P28	Manual operation learning	---

Continuation of the table 6

F23	Delay closing when car passing	000
F24	Effective holding time of ground sense	000
F25	Temperature control threshold (relay output)	-40
F26	Turn off the ground sense angle	000
F27	Event escalation control	000
F28	Duration of opening signal	012
F29	Duration of closing signal	012

3.7. Displays code information description

Table 7

Display code	Cause of error	Relevant description
E01	Resistance	It indicates that the gate encounters resistance during operation. When the gate runs normally in place next time and there is no resistance, this code will be automatically cleared.
E02	Motor not connected or faulty	It indicates that the motor wire is not connected, the connection is loose, the connection is wrong, or the motor Hall sensor is faulty. This code will be cleared only after the motor is properly connected or the fault is handled.
E03	Overcurrent	Indicates that the current is too large during the operation of the gate. When the gate runs next time without overcurrent, this code will be automatically cleared.
E05	Unlearned	Indicates that the gate has not learned stroke, you need to learn stroke through the P00 menu.
E06	Remote not match	Because the remote control has two types of learning code and fixed code, the controller can only use one type of remote control at the same time. If the E06 code is displayed while learning the remote control, the new remote control and the existing remote control are not the same type.
E07	Remote control learned	Indicates that the current remote controller has learned, do not repeat the learning.
E08	Low power supply	Indicates that the current input voltage is lower than the normal operating voltage. The power supply may be faulty.
E09	Low Backup power	Indicates that the input backup voltage is lower than the normal backup voltage.
E10	Hand lifting arm	When the barrier arm is in the normal horizontal position, if someone lifts the arm manually or through the hand wheel , the gate will automatically close the gate to avoid lifting the arm manually and display this code.

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global

Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

Continuation of the table 7

NUL	Not search zero(limit)	Indicates that the gate has not been searched to zero (limit).

4. POSSIBLE MALFUNCTIONS AND TROUBLESHOOTING METHODS

After connection or following a certain period of device operation, malfunctions and errors may occur.

Table 8 provides a list of errors and possible methods for their resolution.

Table 8

Problem	Possible cause	Solution
Can not open till vertical normally or the trip is exceeded when the gate is closed	Incorrect learning	Relearn the stroke through the P00 menu
The controller displays NUL and gives the opening signal. The motor does not move or micro-move. The LED nixie is off and on, and still displays NUL	Switching power overload protection	Power on the switching power supply
	Switching power supply failure	Replace switching power supply
The direction of gate operation is opposite to the key definition direction	The motor direction is set incorrectly	Change the direction of the motor through the P02 menu
Each time the barrier arm reaches the vertical position, it goes back a little	The value set for the vertical position of the barrier arm is too small	Adjust the verticality of barrier arm through the P03 menu
Each time the barrier arm reaches the horizontal position, it goes back a little	The setting value of the barrier arm horizontal position is too small	Adjust the level of barrier arm through the P04 menu
The buzzer is ringing all the time, and the gate cannot be operated by pressing the open and close buttons	There is a short circuit or short circuit of the external on, off or ground sensing signal input	Disconnect all external input signals (wiring), and check short-circuit and short-circuit faults one by one
The remote control is close or insensitive	There's interference with the remote signal	Change high power remote control
	The battery power of the remote control is low	Replace the battery
After the barrier arm is in place, it will shake greatly	Speed setting too fast	In the P05\P06 menu set the speed to low
	The deceleration Angle is set too small	Set the deceleration Angle to large in the P07\P08 menu

Office and Production site:
14 Promyslova str., 02088, Kyiv, Ukraine,
E-mail: sales@tiso.global
Tel.: +380 (44) 291-21-11
Fax: +380 (44) 291-21-02
www.tiso.global

Annex 1. – Wiring diagram RB130 rev. 1.04