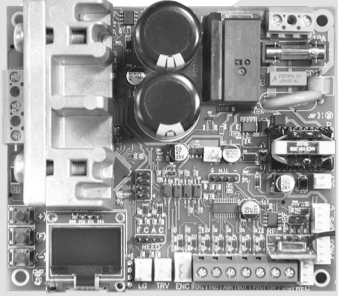


ATTENTION
Do not use this equipment without first reading the User's Manual.



USER'S MANUAL

TRIFLEX FULL RANGE WITH DISPLAY CONTROL BOARD



PRODUZIDO NO POLO INDUSTRIAL DE MANAUS
CONHEÇA A AMAZONIA

2.12 – PUSH-BUTTON CONNECTION ONLY FOR “FEC” CLOSING
The control board recognizes a closing command when the FEC terminal block is connected to GND and then released, that is, a pulse to GND and then the push-button must be released. This makes using it in access control systems that use photocells or inductive loops to automatically close the gate or the barrier easier.
Terminal block 1: GND (-);
Terminal block 6: FEC (NA Contact).

ATTENTION:
The Logic Controller supplies 15 V (maximum continuous current of 300 mA) to power photocells and receivers. An auxiliary power supply must be used if the equipment needs higher voltage or current.

2.13 – “CACF” LIMIT SWITCH REED SENSOR CONNECTION
The control board recognizes a reed switch activated when the pin referring to it on the CACF pin bar (Common, Open Reed, Common, Closed Reed) is connected to GND (Common), that is, a pulse to GND. The only condition that must be followed is that the reed switch that represents the open gate must be connected so that it lights up the “RDA” LED, the “CACF” connector pin marked with the letter “A.” And the “RDF” LED must light up when the gate is closed, the “CACF” connector pin marked with the letter “F.”

2.14 – “PROG” CONNECTOR
This connector communicates between the control board and the programmers: PROG or BLUE, Wi-Fi Connect, and Connect Smart module.

2.15 – “INFO_UPS” CONNECTOR
This connector communicates between the control board and the PPA UPS. With this connection installed, the control board improves its operation when it operates without a power supply, that is, on batteries. The control board reduces consumption when the motor is on by lowering the working speed, thus reaching a reduction of 50%.

3 – THE LOGIC FUNCTION OF GATE SYSTEMS

3.1 – FIRST INVERTER ACTIVATION AFTER IT HAS BEEN INSTALLED (MEMORIZATION)
After the inverter is installed on the operator and powered up for the first time, the gate should start an opening movement after receiving an external command or after the “+” button is pressed.
If it is the closing movement, disconnect the power and change the position of two motor wires connected to the control board terminal block.

Once this is done, press “+” or activate an external command for the control board. After this condition, let the gate open until it touches the opening stop or it activates the REEDA (REED Open). Then, it will reverse direction to close. Let it touch the closing stop or activate the REEDF (REED close).

ATTENTION:
The gate can operate only with ENCODER or ENCODER plus REED, but it cannot operate only with REED. During closing in the memorization period, only a photocell command can reverse the gate direction.

Now the automatic gate is ready to operate.

3.2 – FROM THE SECOND ACTIVATION ON, WHEN THE CONTROL BOARD IS POWERED OFF

After the previous operation, the gate will not need to program the path again. It will simply close slowly after a command, until it touches the closing stop, and the motor will turn off after a few seconds. The gate is now ready to operate. If the photocell is obstructed or the control board receives a command during this first closing, the reference point to be sought will be the opening point in order to speed up the recognition of a known path point.

IMPORTANT: In hybrid mode, that is, REED plus ENCODER, if the gate is located in one of the REEDs, the gate will start at full speed, with no need for path recognition.

ATTENTION:
Placing opening and closing stops for the gate to be automated is crucial.

4 – THE LOGIC FUNCTION OF BARRIER SYSTEMS

4.1 – FIRST INVERTER ACTIVATION AFTER IT HAS BEEN INSTALLED IN BARRIERS (MEMORIZATION)

After the inverter is installed on the operator and powered up for the first time, the barrier should start an opening movement after receiving an external command or after the “+” button is pressed.
If it is the closing movement, disconnect the power and change the position of two motor wires connected to the control board terminal block.

After this condition, let the barrier open until it touches the opening stop. Then it will reverse direction to close, let it touch the closing stop. Now the barrier is ready to operate.
OBS.: During closing in the memorization period, only a photocell command can reverse the barrier.

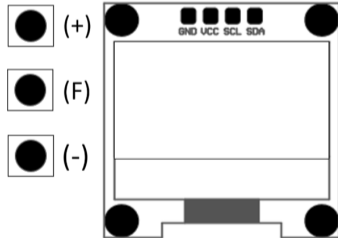
4.2 – FROM THE SECOND ACTIVATION ON, WHEN THE CONTROL BOARD IS POWERED OFF

After the memorization, the barrier will not need to learn the path again if it is powered off. It will simply open slowly, after a command, until it touches the opening stop. So, the barrier is now ready to operate.

5 – PROGRAMMING INVERTER PARAMETERS

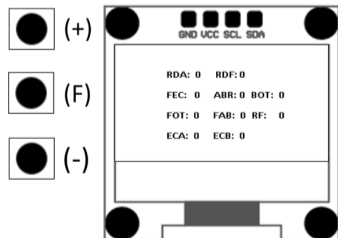
5.1 – PROGRAMMING THROUGH THE INCORPORATED DISPLAY

The control unit has a built-in graphic display that makes it possible to configure its parameters in a similar way to PPA PROG, the (+) and (-) buttons are used to change the value of the function and the (F) button enters the menu and changes the function, see the example diagram:



5.2 – INSPECTION PANEL

The built-in graphic display allows you to observe some important information for operating and installation diagnosis, such as activated inputs, current operator path, current speed, number of cycles and others. See the illustration below:



5.3 – TABLE OF FUNCTIONS

This Programming Function Table is the same for PROG or the built-in display. However, when PROG is connected, the built-in display will be disabled.

Function	Description
RF Code: rolling	RF reception protocol, rolling
Programming TX	Function to program and delete Transmitters (TX) 1 – Program: The control board is prepared to program or delete transmitters (TX) in this function. To program a TX, press the desired transmitter button. Note that the text “Receiving Signal” will appear if receiving the signal, and then press the (+) button to program it. Note that “Programmed TX” is displayed when it receives a signal already programmed on the board. 2 – Delete: To delete the RF transmitters programmed in the memory, press the (-) and the (+) buttons of the Triflex or PROG simultaneously for 10 seconds. Note that the text “Delete TX” will appear, and after the 10 seconds have elapsed, all the programmed transmitters will be deleted, and the memory will be empty.
Semi-automatic function/Pause time in automatic mode	Time for automatic closing up to two hundred and forty seconds (240s). When the zero value is selected, the operator becomes semi-automatic.
Close limit	Increases or decreases the distance at which the operator starts to decelerate when closing.
Open limit	Increases or decreases the distance at which the operator starts to decelerate when opening.
Open speed	Gate: adjust the gate opening speed. OBS.: the adjustment ranges from 60Hz to 200Hz. Barriers: adjust the barrier opening speed. OBS.: the adjustment ranges from 20Hz to 80Hz.
Close speed	Gate: adjust the gate closing speed. OBS.: the adjustment ranges from 60Hz to 200Hz. Barriers: adjust the barrier closing speed. OBS.: the adjustment ranges from 20Hz to 80Hz.
Open limit speed	Speed close to the stop points during opening. In gates , the adjustment ranges from 10Hz (minimum) to 50Hz (maximum). In barriers , the adjustment ranges from 4Hz (minimum) to 20Hz (maximum).
Close limit speed	Speed close to the stop points during closing. In gates , the adjustment ranges from 10Hz (minimum) to 50Hz (maximum). In barriers , the adjustment ranges from 4Hz (minimum) to 20Hz (maximum).
Memorization speed	Speed for memorizing the path or the first movement after the control board is powered on. In gates , the adjustment ranges from 10Hz (minimum) to 50Hz (maximum). In barriers , the adjustment ranges from 4Hz (minimum) to 20Hz (maximum).
Operation force	It regulates the maximum force allowed from 20 to 100%.
Motor force and 0% to 32% Memorization	If necessary, the motor force can be reduced during memorization, for example, to prevent the rack from breaking. In the cases of smaller operators, it is also possible to increase the force at low rotations to ensure total closing and opening. Around 10% is recommended for operators used in gated communities, and about 20% for residential operators.
Courtesy light time	It selects the time the “LG” output is activated after closing the gate. The courtesy light time can be set to keep the light on every 30 seconds, starting from (0s) to (240s). This output is automatically activated when any DIP switch is activated or the memorization is begun. ATTENTION: This function can also be configured for a traffic light and opening delay. However, it can only be configured via PROG or the built-in display.
Stop during opening	In some places, for example, in gated communities, the gate is sometimes required to close automatically as soon as the car leaves the gate path. You must install a photocell and enable the “Follower Photocell” function. Press the (+) button to enable it and include the time before starting closing. The minimum value is zero (0), and the maximum is sixty (60) seconds.
Stop during closing	During the opening, it allows stopping the operator. Off: the operator will always open fully. This mode is widely used in gated communities to prevent several commands from different residents from activating and stopping the gate. This way, the gate will always open fully. On: the operator can stop opening via a command. On Delay Only: the operator can stop if it is within the delay time to open.
Lock pulse on closing	This function enables lock pulse on closing. That is, during closing and close to the stop, the lock pin retracts to make closing the gate easier.
Gate starting speed	The minimum value is 20Hz in increments of 1Hz to 100Hz.
Clearance between gate and stop	HOW TO ADJUST THE CLEARANCE BETWEEN THE GATE AND THE STOP. If necessary, the space between the stop and the gate can be adjusted when the operator finishes the closing or opening cycle. It can be adjusted to be closer to the stop or less close to it. The minimum value is 0, and the maximum value is 16. Important: The gate needs to be activated once so the operator can perform an opening and closing cycle to test the changes.
Operator model	Available options: - Residential: small gates and low-power operators. - Gated communities: larger gates and high-power, high-flow operators. - Up to 3-meter barriers: fast barriers and up to a 3-meter arm. - Barriers from 3m to 6m: slow barriers and over a 3-meter arm. - Non-Stop barriers: Up to 3-meter rod barriers and high-power motors.
Output voltage to the motor at 60Hz	ATTENTION: Only change this function if you know the motor voltage value. If you do not, leave it at 127V. The default value is 127V, corresponding to most motors (three black wires). The function value can be changed for use in yellow three-wire motors (220V).
Photocell contact configuration	This function allows configuring whether the photocell operates with normally closed or open contact or resistive mode. - Normally open: the idle input is disconnected from the GND; it accepts a command when it is connected to the GND. - Normally closed: the idle input must be connected to the GND; it accepts a command when disconnected from the GND. - Resistive: the input must have all the photocells connected, and then the (+) button must be pressed to calibrate this value as default. For any different value, a photocell command will be triggered.
Setting the motor into motion	This function allows setting the motor into motion to check the physical limits and position the magnetic reeds. The motor moves in one direction while the (+) button is pressed and in the other direction when the (-) button is pressed. It can be seen on the display if the reeds have been activated.
Anti wind	When enabled, this function prevents the gate from being opened manually through force. When manually forcing the gate opening, the motor automatically applies a movement to close the gate. ON: Prevents manual opening of the gate through force. OFF: Enables manual opening of the gates through reversal.
Pedestrian Opening	In the pedestrian opening, the gate opening percentage can be programmed. This function leaves the factory at 30%, and it can be changed from 10% to 90% of the path.
TX Pedestrian Button	In the TX pedestrian function, a recorded transmitter button, which will send a command to open the path percentage chosen in the pedestrian opening function, can be selected.

Pedestrian Terminal Block	In the pedestrian terminal block function, the Triflex Full Range electronic board terminal block, which will receive the pedestrian button command, can be determined. The options “BOT” (opening and closing command) or “ABR” (only opening command) can be selected).
Only Open Push-button	In the only open push-button function, one more opening command can be configured to use one more access control system.
Language	Display languages: - Portuguese - English - Spanish

6 – DELETING PROGRAMED PATH

To delete the path, just press the (+) button and the (-) button, hold them pressed and wait for the count shown on the display, the same can be done by PROG. At the end of this process, the SN LED of the control board will be on.

7 – APPLYING THE FACTORY DEFAULT VALUES

To return the functions to factory settings, just press the (+) button and the (-) button, hold them pressed and wait for the count shown on the display to erase the path. Keep them pressed until the count starts to apply the default values, wait to reach 0s and the values return to the default ones. The same can be done by PROG. At the end of this process, the SN LED of the control board will flash quickly.

8 – ANTI-CRUSH SYSTEM

The anti-crush feature allows detecting the presence of obstacles in the gate's path. In the normal operating cycle, if an obstacle is detected, the system will take the following actions:

a) When closing: the gate will be activated in the opening direction.
b) On opening: the motor will be turned off and wait to receive some command to start closing.
In the memorization cycle, the anti-crushing feature only has the function of recognizing the opening and closing limit switches, that is, the path points where an obstacle was detected will be interpreted as the limit switch.

ATTENTION: This anti-crushing system is not enough to avoid accidents with people and animals, therefore the use of Photocells in the automation is mandatory.

9 – TESTING THE ENCODER OPERATION

The automation encoder can be tested and for that, just connect it to the control board and check if the “ECA” and “ECB” LEDs are flashing when the operator moves. Each LED corresponds to a sensor, for example, the “ECA” LED corresponds to sensor A, inside the gearmotor.

10 – EVENT AND FAILURE SIGNALING

10.1 – MICROCONTROLLER OPERATION SIGNALING
The main function of the “SN” LED is to indicate that the microcontroller on the board is operational. It flashes at an approximate frequency of 1Hz.

10.2 – OVERCURRENT OR SHORT-CIRCUIT SIGNALING ON THE MOTOR
The “SN” LED flashes rapidly from 0.1s to 0.1s to warn that the power stage has tripped due to overcurrent or short circuit in the motor. The control panel will operate normally 10s after the overload.

10.3 – EEPROM MISSING SIGNALING
The “SN” LED flashes twice when Memory is not present.

10.4 – EEPROM SIGNALING WITH INVALID DATA
The “SN” LED flashes three times when Memory is present but it has content that the microcontroller does not identify as a Valid Transmitter Code.

10.5 – OPEN LIMIT SWITCH SIGNALING
The “FC” LED flashes when the gate is in the open limit switch region.

10.6 – CLOSED LIMIT SWITCH SIGNALING
The “FC” LED is on when the gate is in the closed limit switch region.

10.7 – LOAD IN CAPACITORS SIGNALING
The “BUS” LED indicates there is a charge on the Power stage capacitors. Attention: Do not touch the power region (capacitor region) of the board while this LED is on, even after the inverter has been disconnected from the mains!

10.8 – COMMAND SIGNALING
The “CMD” LED on indicates that the control board is receiving a command from digital inputs, such as ABR, FEC, BOT or FOT.

11 – TROUBLESHOOTING

Problem	Cause	Solution
The gate does not correspond to the installed location path (it brakes before the closing stop or hits the closing).	A different path is programmed that is different from the installed location path.	Reset the programmed path.
The gate remains open, and it closes when it receives a command to open.	Memorization was not made correctly.	Check item: “First inverter activation after being installed on the automatic gate (memorization)”.
“SN” LED flashes quickly, and the motor turns off.	Current sensor is working. This can happen when the motor is having problems.	Check the stator resistance. Check the motor current (it must be less than 3A RMS average and 5A RMS peak (max. 2s)

WARRANTY TERMS

MOTOPPAR da Amazônia Indústria e Comércio de Eletrônicos Ltda, registered under the CNPJ No. 09.084.119/0001-64, located at Av. Açai nº 875, Distrito Industrial I, Manaus, AM, CEP 69075-904, manufacturer of PPA products, guarantees this device against defects in design, manufacture, assembly and/or jointly and severally as a result of defects in the quality of the material that make it inappropriate or unsuitable for the application for which it is intended, for a legal period of 90 (ninety) days from the date of purchase, provided that the installation guidelines described in the User's Manual are observed.

As a result of the credibility and trust placed in PPA AND CITROX products, we have added another 275 days to the above period, reaching a total of 1 (one) year, also counted from the date of purchase to be proven by the consumer through the proof of purchase (purchase invoice).

In case of defects, within the warranty period, PPA's liability is restricted to repairing or replacing the device manufactured by it under the following conditions:
1. The equipment can only be repaired and readjusted by Technical Assistance, authorized to open, remove, replace parts or components, and fix the defects covered by the warranty. Whereas failure to observe this and any use of non-original parts will result in the waiver of this term by the consumer.
2. The warranty does not extend to accessories such as cables, screw kits, fixing brackets, sources, etc.
3. The consumer exclusively bears packaging, transporting, and reinstalling the product.

4. The equipment must be sent directly to the company responsible for the sale, the manufacturer's representative to the address on the purchase invoice, and adequately packaged, thus avoiding the loss of warranty.
5. In the additional 275 days, technical visits in locations without authorized services will be charged. The consumer owner bears the costs of transporting the device and/or technician.
6. The replacement or repair of the equipment does not extend the warranty period.

This warranty will be void if:
1. The product suffers damage caused by agents of nature, such as atmospheric discharges, floods, fires, landslides, etc.
2. It is installed in an improper electrical power supply or even in disagreement with any of the installation instructions set out in the manual.
3. It presents defects caused by falls, blows, or other physical accidents.
4. It is tampered with, or it is repaired by unauthorized personnel.
5. It is not used for its intended purpose.
6. It is not used under normal conditions.
7. It suffers damage caused by accessories or equipment attached to it.

Recommendation:
We recommend installing and maintaining the product with a specialized technical service.
If the product has a defect or abnormal operation, look for a specialized Technical Service for the necessary corrections.

Made by:

Motoppar da Amazônia Indústria e Comércio de Eletrônicos Ltda.
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¹See item “FIRST ACTIVATION OF THE INVERTER AFTER IT HAS BEEN INSTALLED ON THE OPERATOR (MEMORIZATION)”.

