

INSTALLATION, OPERATION AND MAINTENANCE MANUAL



BASICCONTROL

MANUFACTURER:

IRRICONTROL CONTROLE INTELIGENTE DE IRRIGACAO S.A

CNPJ: 26.941.490/0002-03

Rua Eisleben Cereja Correa Fonseca, 117 - Lote 01-A Quadra Galpão 02 - Parte A

Distrito Industrial, São João da Boa Vista – São Paulo, Brasil

Zip Code: 13877-776

Email: contato@irricontrol.com.br

Phone: +55 (019) 3634-1212

Website: www.irricontrol.com.br

DATE	REVISION	DESCRIPTION	REVISED	APPROVED
01.2025	00	Start of document	v.santos	l.óboli

SUMMARY

LIST OF FIGURES.....	5
LIST OF TABLES.....	7
1. Introduction.....	9
2. Notes.....	10
3. Alerts.....	11
4. Warranty Information.....	12
5. Contacts for Problems and/or Additional Questions	13
6. Technical Specifications	14
7. Product Presentation.....	15
8. Product Composition	16
9. Equipment Installation.....	18
9.1. Mechanical Installation.....	18
9.2. Electrical Installation.....	18
9.2.1. Electrical Power Cables.....	19
9.2.2. Multi-conductor Cables	24
9.2.3. Pump cable (Fertigation Pump)	25
9.2.4. Mixer Cable (Fertigation)	26
10. Operation and Configuration.....	27
10.1. Three Phase Control Relay.....	27
10.2. Percentage Timer.....	28
10.2.1. Green LED – Percentage timer.....	29
10.2.2. Red LED - Percentage timer	29
10.3. Powering The Panel	30
10.4. Operation Hour Meters	33

10.4.1. Partial Hour Counter	33
10.4.2. Total Hours Counter	34
10.5. Emergency.....	35
10.6. Phase Detection LEDs.....	36
10.7. Override SAFETY.....	37
11. Commands – FORWARD, REVERSE and STOP	39
12. Alignment Procedure	41
13. Tests.....	44
14. Failures and Possible Causes	46
14.1. Pivot Stopped due to a Safety Failure	46
14.2. Panel Does Not Turn On	47
14.3. Pivot Stopped Suddenly	47
14.4. Panel Shut Down Abruptly	48
15. Extra Information and Care	49
15.1. Electrical Power Quality	49
15.2. Periodic Maintenance	49
15.2.1. Cleaning the Inside of the Cabinet.....	50
15.2.2. Checking Panel Insulation	50
15.2.3. Ventilation System Maintenance	50
15.2.4. Other Irrigation System Maintenance.....	51
ANNEX 1 – (Electrical Diagram of the BasicControl)	53

LIST OF FIGURES

Figure 1 - BasicControl detail.	16
Figure 2 - Main switch in OFF position.	19
Figure 3 - BasicControl interior.	19
Figure 4 - Steering to unlock the disconnect.	20
Figure 5 - Removal of the section switch cover	20
Figure 6 - Removal of plastic protection.	21
Figure 7 - Screws of the cable fastener.	21
Figure 8 - Connecting the power cables.	22
Figure 9 - Plastic protection repositioned.	22
Figure 10 - The switchgear cover is in place.	23
Figure 11 - Switchgear lock in the "LOCKED" position.	23
Figure 12 - Connecting the multi-conductor cables.	24
Figure 13 – Connecting the pump cables.	25
Figure 14 - Connecting the mixer cables.	26
Figure 15 - Three phase control relay.	27
Figure 16 - Percentage timer selector.	28
Figure 17 - Indication of pivot in motion (FORWARD or REVERSE).	29
Figure 18 - Indication that the last tower is in motion.	29
Figure 19 - Fuse puller switch in the locked position.	30
Figure 20 - Current limite adjustment.	30
Figure 21 - Components Residual Differential Switch and Motor Protector BU.	31
Figure 22 - Emergency Button in the “NEUTRAL” position.	31
Figure 23 - Main switch in the “ON” position.	32
Figure 24 - Reset performed on the partial hour counter.	33
Figure 25 - Total operating hours counter.	34
Figure 26 - Activation of the Emergency Button.	35
Figure 27 - Returning the Emergency Button to the “NEUTRAL” position.	35
Figure 28 - All LEDs on, indicating normality in all three phases.	36

Figure 29 - LED 05H2 off, indicating an anomaly in phase two..... 36

Figure 30 - Safety activated..... 37

Figure 31 - Safety disabled. 38

Figure 32 - FORWARD command. 39

Figure 33 - REVERSE command. 39

Figure 34 - STOP command. 40

Figure 35 - Safety override. 41

Figure 36 - Direction in which the pivot will move during the ALIGNMENT process. 41

Figure 37 - Activation of the contactor to move the drive tower. 42

Figure 38 - Selection of pivot operation direction. 42

Figure 39 - Safety override DEACTIVATED. 43

Figure 40 - Panel ventilation system. 50

LIST OF TABLES

Table 1 - Technical product specifications.	14
Table 2 - Description of the items that make up the panel.	17
Table 3 - Connecting the multi-conductor cables.....	24
Table 4 - Connecting the pump cables.	25
Table 5 - Connecting the mixer cables.....	26
Table 6 - Failure (Pivot stopped for SAFETY).....	46
Table 7 - Failure (Panel does not turn on).	47
Table 8 - Failure (Pivot suddenly stalled).	47
Table 9 - Failure (Panel shutting down suddenly).....	48

1. Introduction

This manual provides essential guidance for the installation and operation of the BasicControl. It is crucial that all team members involved in each step thoroughly study this manual before initiating any equipment-related procedures. Keep it in a secure location accessible to the entire staff for reference when needed.

The document comprehensively covers essential and relevant information about the equipment. However, if additional clarification is required, you can contact Bauer's technical support.

All information contained in this manual is based on the most up-to-date data available from Bauer products at the time of printing. Due to ongoing equipment development, the company reserves the right to modify the content of this manual without prior notice, absolving itself of any liability arising from such changes.

Images included in the manual are purely illustrative and may differ from the actual equipment to be assembled. Their inclusion aims to enhance understanding of the equipment assembly process.

Reproduction of this manual, in whole or in part, as well as its distribution to third parties, is expressly prohibited without prior written authorization from Bauer.

2. Notes

This manual uses various types of notes to organise and highlight critical information related to the operation and maintenance of the cabinet. The notes are categorised according to their purpose, as described below:

- **SUPPLEMENTARY NOTE** – Provides additional information that assists in understanding or executing a specific instruction.



Information.

- **WARNING NOTE** – Draws attention to potential damage to the equipment or critical details that may impact system performance.



Information.

- **DANGER NOTE** - Highlights situations that pose risks to the operator's physical safety or life. These must be strictly followed to avoid serious injury or death.



Information.

- **PERIODICITY NOTE** – Specifies recommended time intervals for tasks such as preventive maintenance or operational adjustments.



Information.

Pay attention to these notes throughout the manual, as they are designed to enhance understanding and ensure safety and efficiency when using the equipment.

3. Alerts

The BasicControls operate at a voltage range of 360 VAC to 440 VAC. Therefore, it is essential to strictly follow the instructions in this manual to prevent serious personal injuries and/or equipment damage. It is recommended that this manual accompanies the product and is stored in a secure, accessible location known to operators, technicians, and other involved personnel. Since the BasicControl is installed on Bauer pivot structures and integrated into their electrical system, it is crucial to ensure that all instructions and precautions provided by the pivot manufacturer are followed diligently.



Only authorized personnel should perform maintenance and interventions on the equipment. Following this recommendation is essential to ensure safety and proper functioning.



The user is responsible for complying with all safety regulations and local requirements during equipment installation and operation.



Improper handling of the equipment may lead to an electric shock. Therefore, it is crucial to always follow the safety guidelines and operating instructions.

4. Warranty Information

Bauer provides a warranty for its entire product line, covering manufacturing defects and malfunctions. In such cases, the company commits to providing all necessary assistance, including partial or total repairs and replacements.

For the warranty to be valid and actionable, it is essential to fully adhere to the conditions and rules outlined in the **WARRANTY AGREEMENT**, which must be agreed upon.

Refer to the **PURCHASE AND SALE CONTRACT** for further details and information regarding duration, coverage, activation procedures, exclusions, and the necessary documentation for warranty claims.



It is important that all documentation related to equipment purchases (such as INVOICES, WARRANTY TERMS, among others) be properly filed to ensure that any necessary procedures are expedited.

5. Contacts for Problems and/or Additional Questions

In case of issues or additional questions, customers can contact Bauer's Technical Support using the following channels:

Email: suporte@irricontrol.zendesk.com

Phone: +55 (19) 2112-9856

Website: <https://irricontrol.zendesk.com/hc/>

The support team is available to address any questions that may arise during equipment installation, configuration, or operation. For optimal assistance, please provide the product's serial number and purchase invoice.

6. Technical Specifications

PRODUCT DESCRIPTION	BASICCONTROL
Version	1.0
Supply Voltage	400 VAC (3F+N+PE)
Rated Current	16 A
Control Voltage	220 VCA
Degree of Protection	IP 65

Table 1 - Technical product specifications.

7. Product Presentation

The BasicControl is a device designed to control Bauer central irrigation pivots. Through it, you can start and stop the irrigation system, configure the operating speed, and access relevant information about the pivot's functioning.

This equipment plays crucial role in protecting the electrical and mechanical components that make up the irrigation system. It includes safety devices that protect against critical misalignment, and component burnout (in cases of electrical overload or due to lightning strikes).

By using the BasicControl, central pivot operation becomes secure and straightforward.

8. Product Composition

The BasicControl is composed of mechanical and electrical components that work in harmony to ensure precise and efficient control of the irrigation system, providing reliable and high-performance operation. The panel consists of:

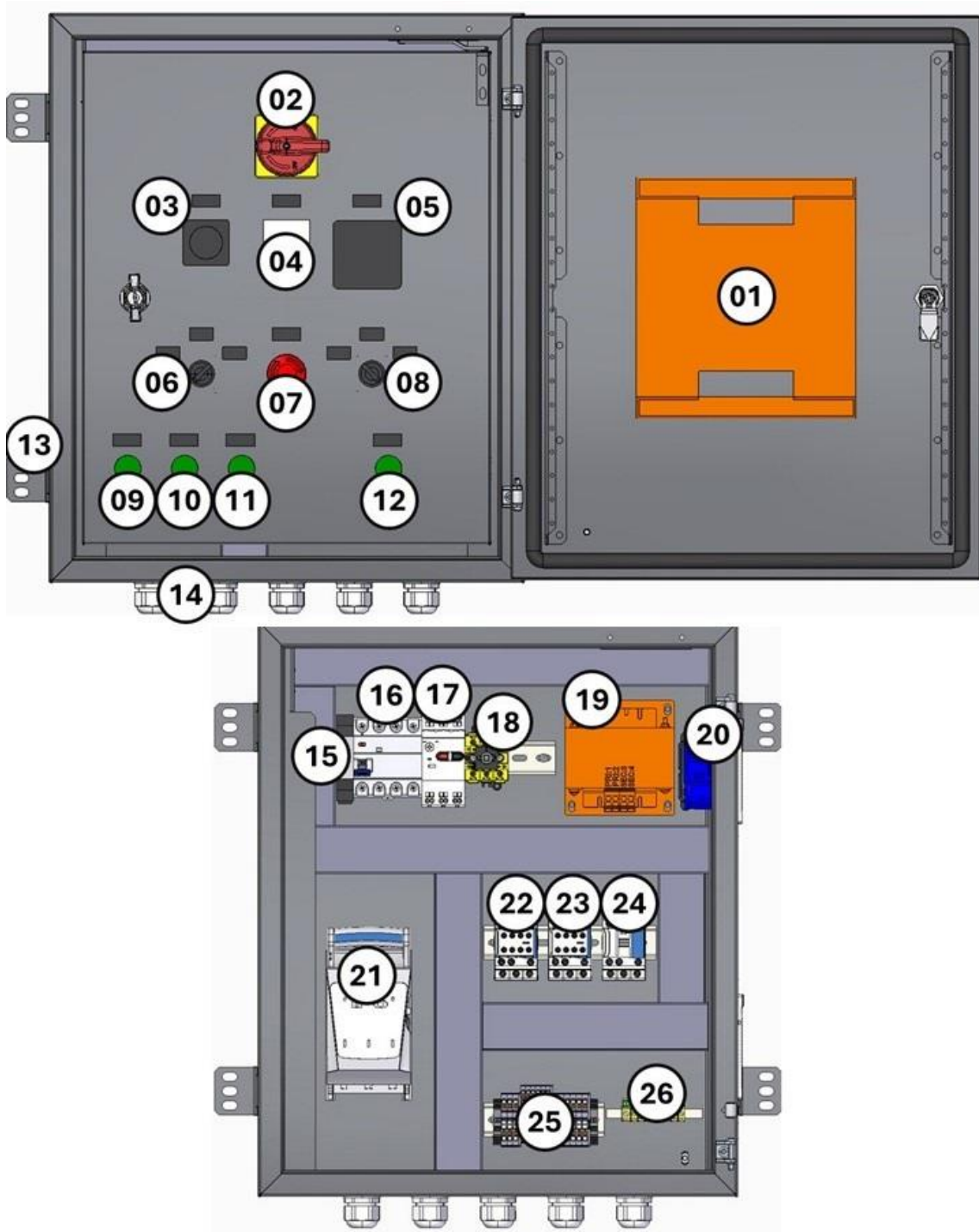


Figure 1 - BasicControl detail.

Item	ID	DESCRIPTION
01	-	DOCUMENT HOLDER
02	05Q2	ROTARY DISCONNECTOR MSW 25 B3 H
03	06A1	PERCENTAGE TIMER
04	06P2	HOUR TOTALIZER LTH-T
05	06P1	ELECTROMECHANICAL HOUR TOTALIZER
06	06S3	ANALOG SELECTOR – FORWARD/STOP/REVERSE
07	06S1	EMERGENCY BUTTON
08	06S2	ANALOG SELECTOR – SAFETY ACTIVATED / SAFETY BYPASSED
09	05H1	LED INDICATING PHASE 1
10	05H2	LED INDICATING PHASE 2
11	05H3	LED INDICATING PHASE 3
12	06H1	LED INDICATING THE STATUS OF THE SAFETY CIRCUIT.
13	-	HANDLE FOR PANEL FIXATION
14	-	CABLE GLAND
15	05K1	THREE PHASE CONTROL RELAY
16	05F1	RESIDUAL DIFFERENTIAL SWITCH 63A 4P 440VAC 100mA
17	05F2	MOTOR PROTECTOR BU MPW18-3-D016
18	05Q2	ROTARY DISCONNECTOR MSW 25 B3 H
19	05T1	ISOLATED SINGLE-PHASE TRANSFORMER - 350 VA
20	05M1	VENTILATION/EXHAUST SYSTEM - 109X109mm
21	05Q1	DISCONNECTOR SWITCH FUSE FSW100-3
22	05Q3	CONTACTOR CWB12-11-30D23 - FORWARD
23	05Q4	CONTACTOR CWB12-11-30D23 – REVERSE
24	05Q5	CONTACTOR CWB12-11-30D23 - PUMP
25	-	COMMAND TERMINALS
26	-	GROUNDING TERMINALS

Table 2 - Description of the items that make up the panel.

9. Equipment Installation

Proper electrical and mechanical installation of the BasicControl is essential for seamless integration with the entire irrigation system, ensuring that the pivot behaves as expected.

9.1. Mechanical Installation

The BasicControls are installed on the central tower of the Bauer irrigation pivot. Therefore, it is essential to strictly follow the mechanical installation instructions provided in the pivot's manual.

9.2. Electrical Installation

To properly energize the system, it is necessary to make the following electrical connections:

- Power cable connection.
- Multi-conductor cable connection.
- Pump cable connection.
- Mixer cable connection.



Cable entry is through the cable glands (PGs) located at the bottom of the panel. It is important to close them properly to ensure the correct sealing of the product.



If any doubts arise or additional information is needed, the electrical diagram (**ANNEX 1 – (Electrical Diagram of the BasicControl)**) should be consulted.



Ensure connections are made correctly to prevent electrical intermittency and equipment malfunction.



Text. The activity should be carried out with utmost attention, using the appropriate personal protective equipment and tools, to mitigate the risk of accidents.

9.2.1. Electrical Power Cables

The power supply to the panel is carried out through four-wire cables, consisting of three phases (L1, L2 and L3) and one ground (PE), which provide power to the panel. This energy is distributed to other electrical equipment along the overhead section of the Bauer central irrigation pivot.



Due to the risks and considering the safety of those involved the activity must be carried out with the cables DE-ENERGIZED.

For proper connection, follow the steps below:

A. Turn the main switch to the OFF position (this will de-energize the panel, allowing access to its interior).

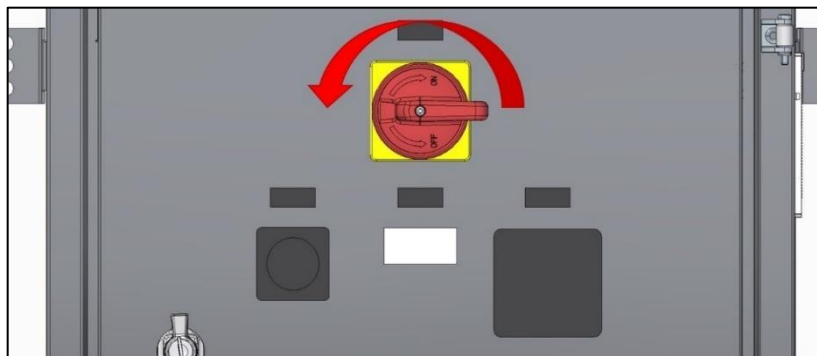


Figure 2 - Main switch in OFF position.

B. Access the interior of the product by opening both the external and internal doors of the panel.

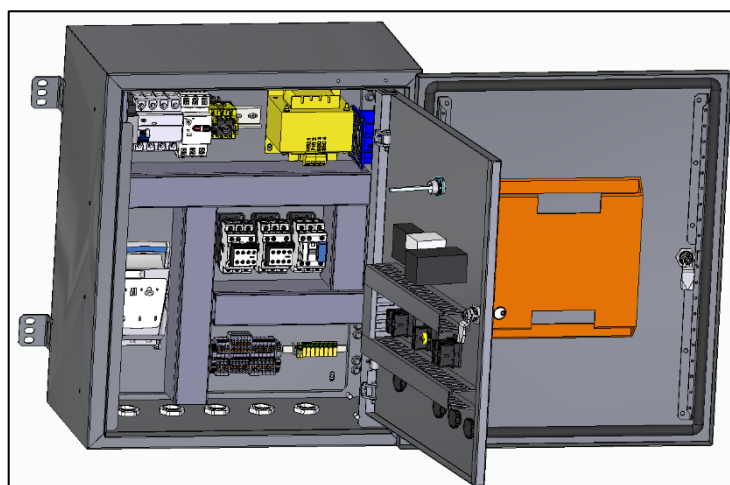


Figure 3 - BasicControl interior.

C. Position the fuse switch lock (05Q1) to the “UNLOCKED” position.



Figure 4 - Steering to unlock the disconnect.

D. Open and remove the section switch cover – by pulling the opening lever.

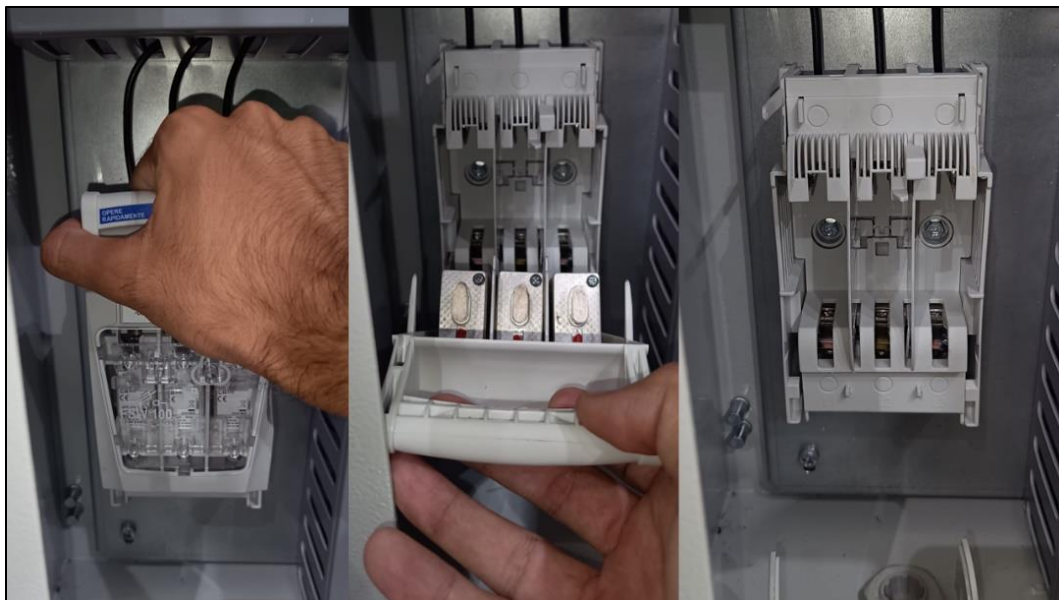


Figure 5 - Removal of the section switch cover

- E. Remove the plastic protection by pressing the middle latch with two fingers.

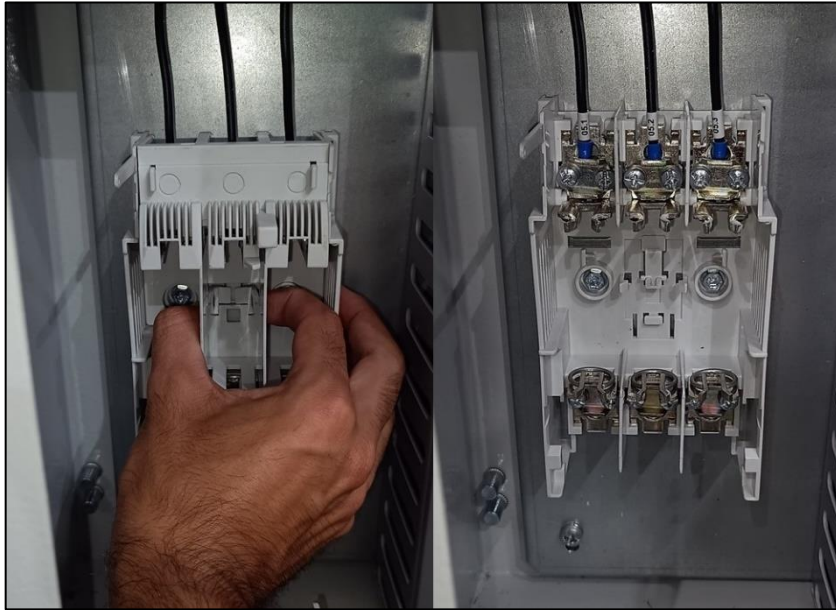


Figure 6 - Removal of plastic protection.

- F. Loosen the screws of the cable fixer using a Phillips screwdriver.



Figure 7 - Screws of the cable fastener.

G. Insert the three phase cables into the switchgear and tighten the cable fixing screws, using a Phillips screwdriver.

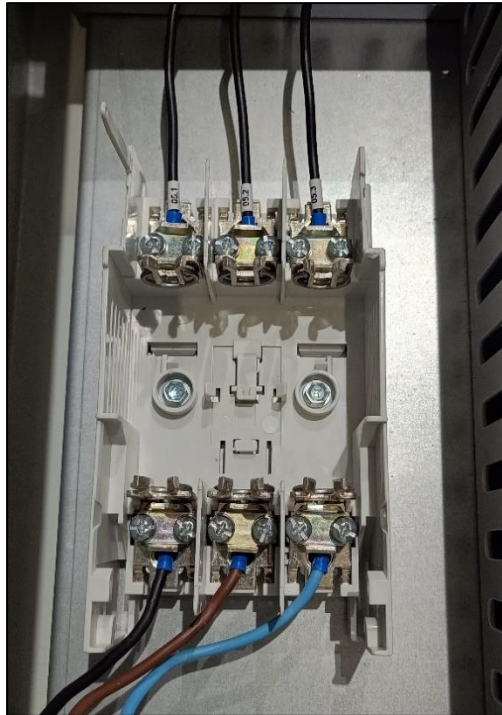


Figure 8 - Connecting the power cables.

H. Reposition the plastic protection, ensuring it locks correctly.

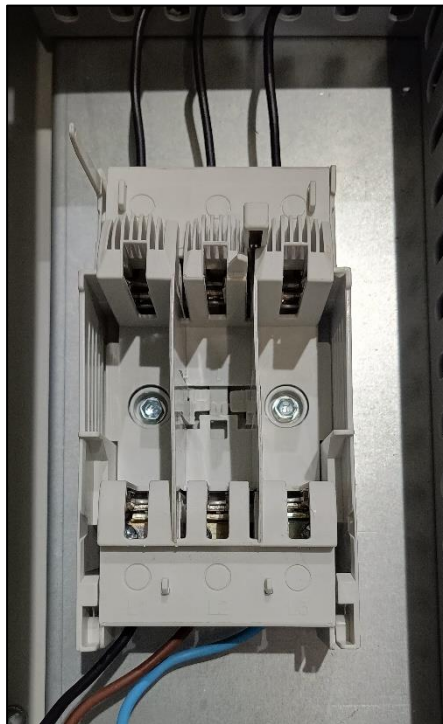


Figure 9 - Plastic protection repositioned.

- I. Reposition and close the switchgear cover.



Figure 10 - The switchgear cover is in place.

- J. Reposition the switchgear lock to the "LOCKED" position.

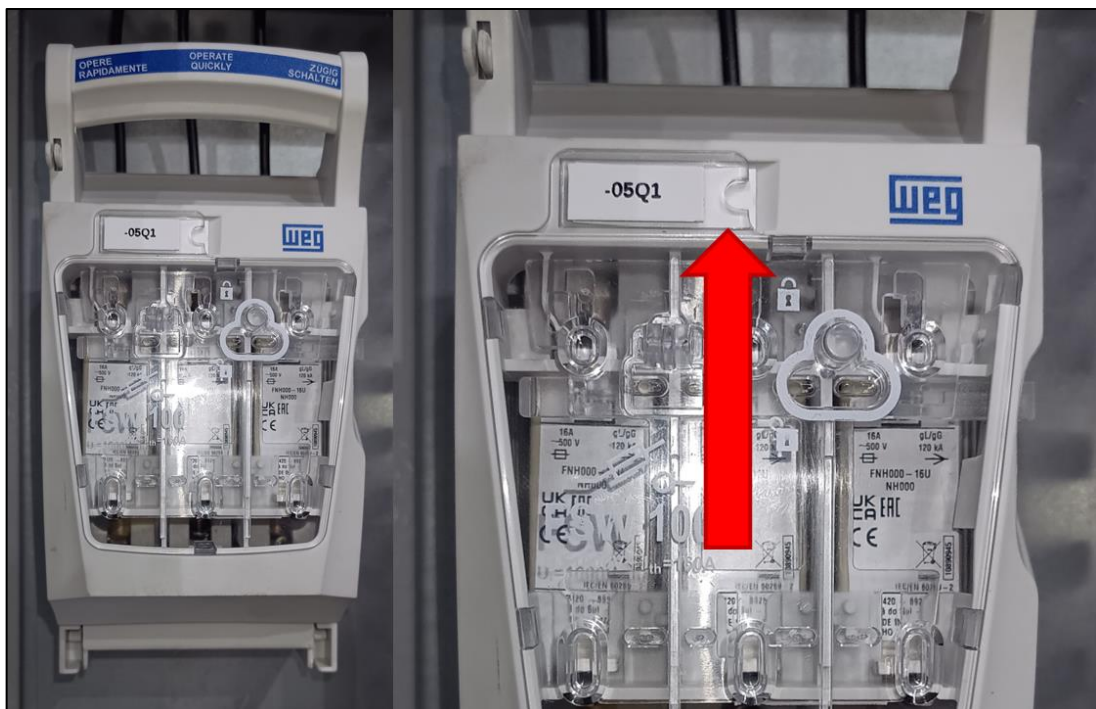


Figure 11 - Switchgear lock in the "LOCKED" position.

- K. The panel is now ready to be energized.

9.2.2. Multi-conductor Cables

The multi-conductor cable serves as the transmission medium for energy between the control panel and the overhead part of the Bauer central irrigation pivot, where the control boxes are located to energize and control the gear motors. The following diagram illustrates how to connect these cables to the panel. Table 3 illustrates how to connect these cables to the panel.

POSITION	CABLE COLOR	CABLE FUNCTION
Ground Terminal Block	Green and Yellow	Electrical Grounding
Terminal Block 01	Black	Gearmotor Phase
Terminal Block 02	Blue	Gearmotor Phase
Terminal Block 03	Brown	Gearmotor Phase
Terminal Block 04	Pink	Neutral
Terminal Block 05	Gray	Forward
Terminal Block 06	Red	Reverse
Terminal Block 07	White	Safety Out
Terminal Block 08	Purple	Safety In
Terminal Block 09	Blue	Last Tower

Table 3 - Connecting the multi-conductor cables.

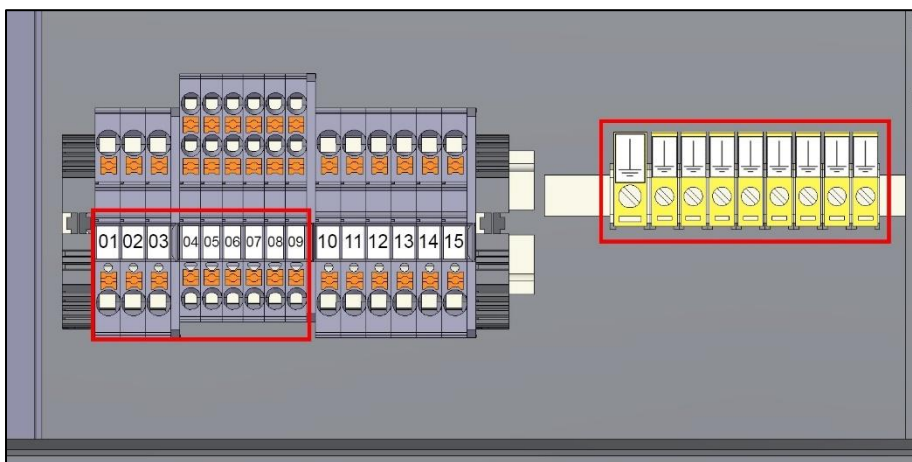


Figure 12 - Connecting the multi-conductor cables.

9.2.3. Pump cable (Fertigation Pump)

The fertigation pumping system is powered through the pump's power cables. Table 4 illustrates how to connect these cables to the panel.

POSITION	CABLE FUNCTION
Terminal Block 10	Pumping Phase
Terminal Block 11	Pumping Phase
Terminal Block 12	Pumping Phase
Ground Terminal Block	Electrical Grounding

Table 4 - Connecting the pump cables.

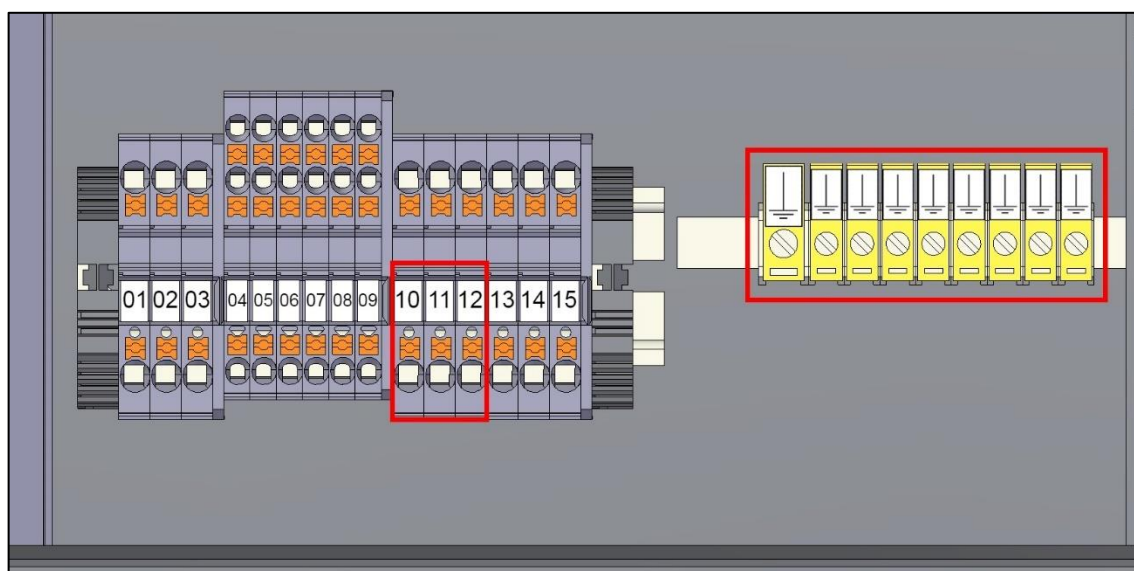


Figure 13 – Connecting the pump cables.

9.2.4. Mixer Cable (Fertigation)

The mixer is powered through the 4-way mixer cables. Table 5 illustrates how to connect these cables to the panel.

POSITION	CABLE FUNCTION
Terminal Block 13	Mixer Phase
Terminal Block 14	Mixer Phase
Terminal Block 15	Mixer Phase
Ground Terminal Block	Electrical Grounding

Table 5 - Connecting the mixer cables.

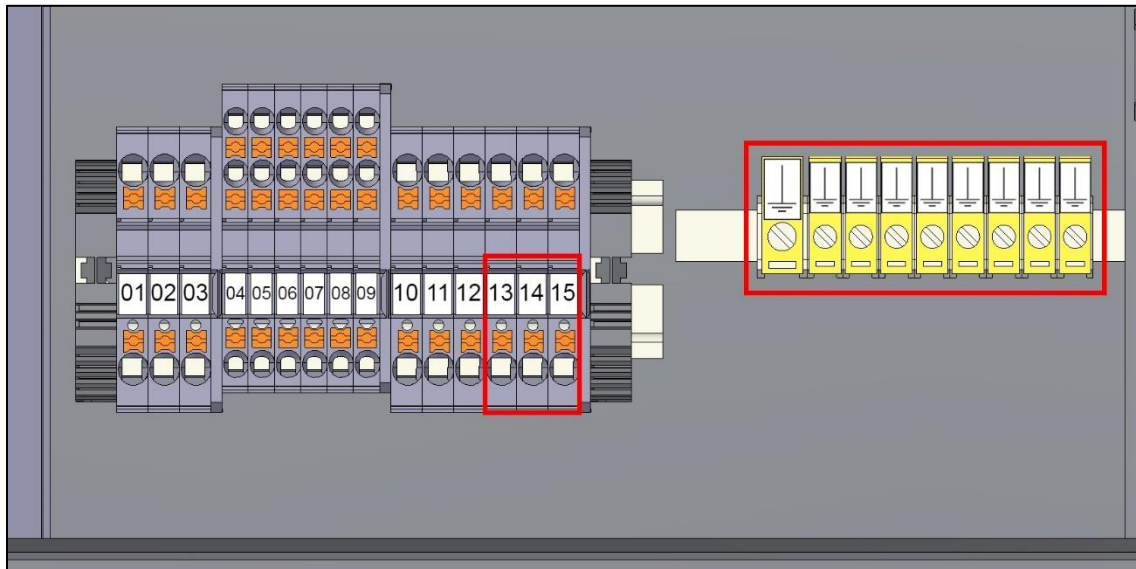


Figure 14 - Connecting the mixer cables.

10. Operation and Configuration

This section provides information on how the cabinet should be operated, covering details on how to perform the necessary configurations and send commands to the pivot.



If any abnormalities are observed, consult topic **14-Failures and Possible Causes**.

10.1. Three Phase Control Relay

The three-phase control and measurement relay is a modular device used to monitor electrical voltage in three-phase systems, ensuring the proper operation of the control panel.

The component should be configured according to local conditions and the operational preferences of the client/operator.

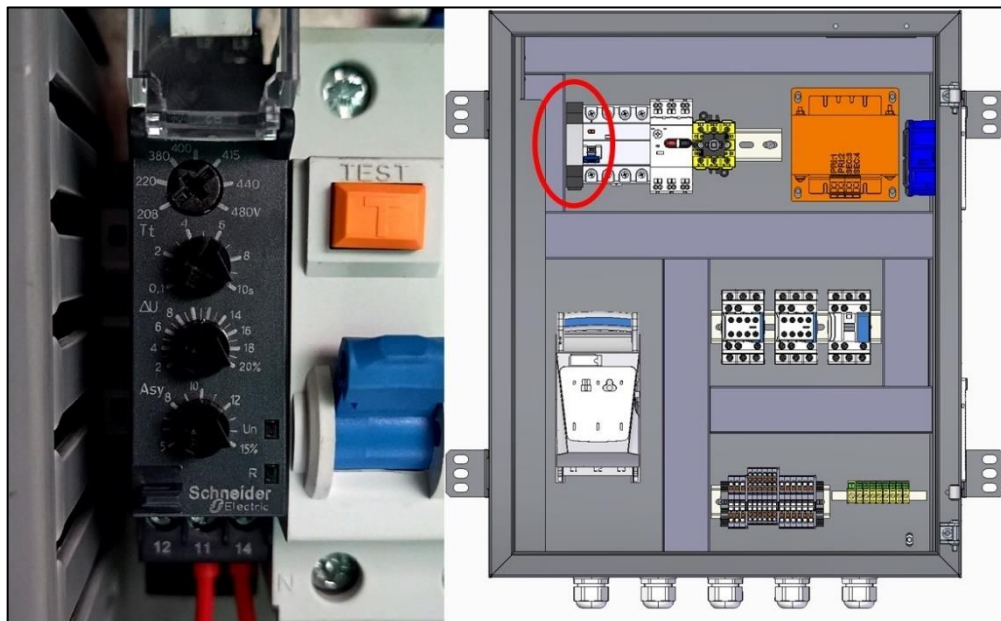


Figure 15 - Three phase control relay.

The parameters to be set are as follows:

- **SUPPLY VOLTAGE** – Set according to the voltage level at which the panel will be powered.
- **"ERROR DELAY" TIME** – Set according to the time, in seconds, the cabinet can be exposed to a voltage outside the pre-established limits without forcing to stop.

- VOLTAGE LIMIT – Set according to the acceptable percentage for supply voltage variation (consider both over and under variations).
- ASYMMETRY CONTROL – Set the acceptable values for phase imbalance.

10.2. Percentage Timer

The percentage timer is the component responsible for determining the percentage of a minute during which the Last Pivot Tower will move. This regulates the movement time of the irrigation system and, consequently, the amount of water applied. Its configuration is done by adjusting the selector to the clockwise and left, as shown in Figure 16 below.

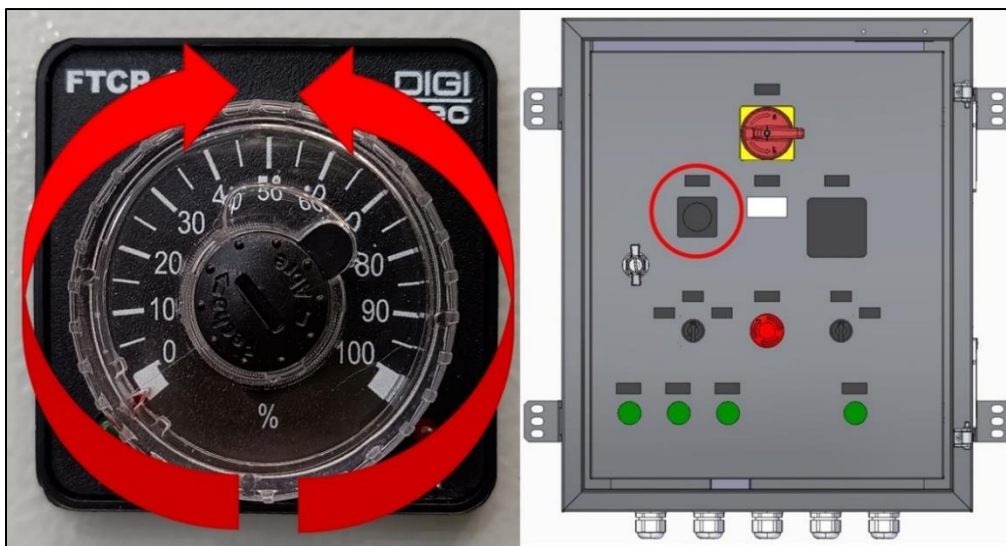


Figure 16 - Percentage timer selector.

- To increase the percentage timer – Turn the selector to the clockwise.
- To decrease the percentage timer – Turn the selector to the left.



The parameter configuration must be defined according to the operational needs or user preferences.

Setting at 100% indicates that the Last Pivot Tower of the Bauer central irrigation pivot will move continuously, resulting in a shorter duration for a complete irrigation cycle and a reduced amount of water applied. Setting at 50% means that the system rotation is reduced to half the time—30 seconds moving, and 30 seconds stopped—resulting in a doubled amount of water applied per area.

10.2.1. Green LED – Percentage timer

The green LED indicates the pivot's movement status.



Figure 17 - Indication of pivot in motion (FORWARD or REVERSE).

- LED ON – Pivot in motion (FORWARD or REVERSE).
- LED OFF – Pivot stopped.

10.2.2. Red LED - Percentage timer

The red LED indicates the movement status of the last tower of the pivot.



Figure 18 - Indication that the last tower is in motion.

- LED ON – Last tower in motion (FORWARD or REVERSE).
- LED OFF – Last tower stationary.

10.3. Powering The Panel

It will only be possible to execute any command on the panel after making the electrical connections and the panel has been energized.

- A. Ensure that item 05Q1 is locked.



Figure 19 - Fuse puller switch in the locked position.

- B. Using a Phillips screwdriver, adjust the current limit to 1.3 A for component 05F2.



Figure 20 - Current limit adjustment.



This parameter is evaluated during quality tests in panel manufacturing. However, it is advisable to check and adjust it again if necessary.

C. Set components 05F1 and 05F2 to the “ON” and “I” position.

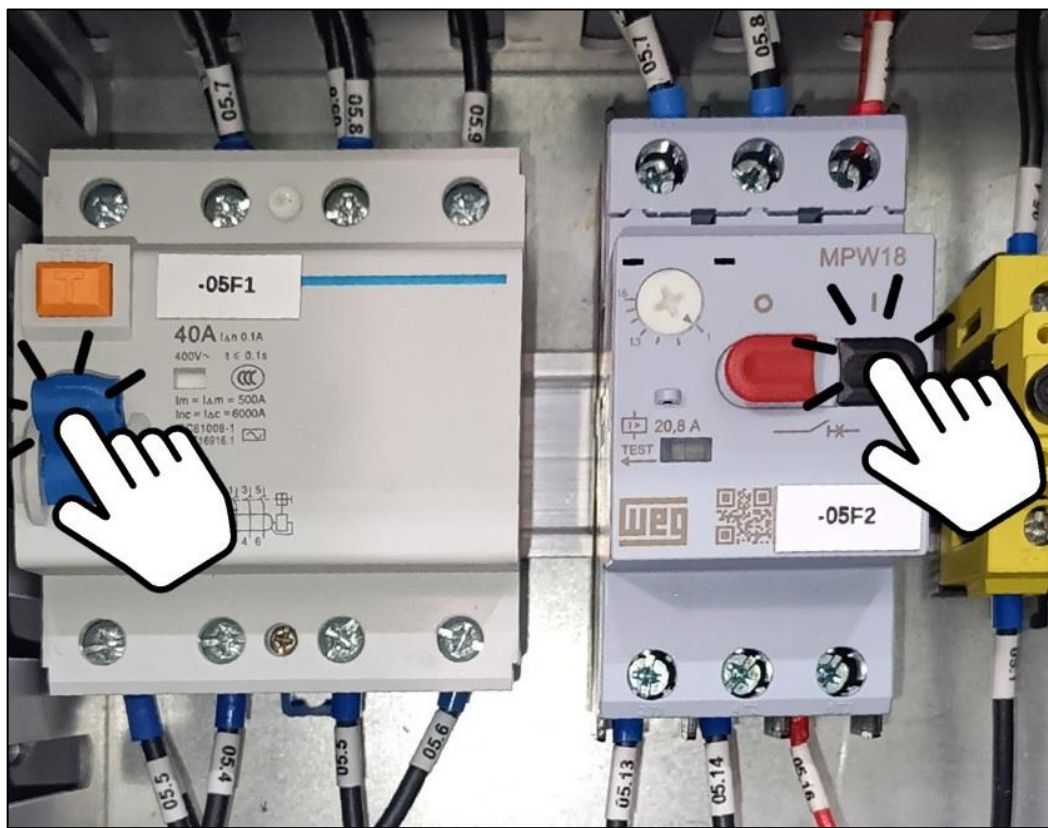


Figure 21 - Components Residual Differential Switch and Motor Protector BU.

D. Close the internal panel door and lock it.

E. Confirm that the Emergency Button is in the “NEUTRAL” position – Rotate it to the clockwise.

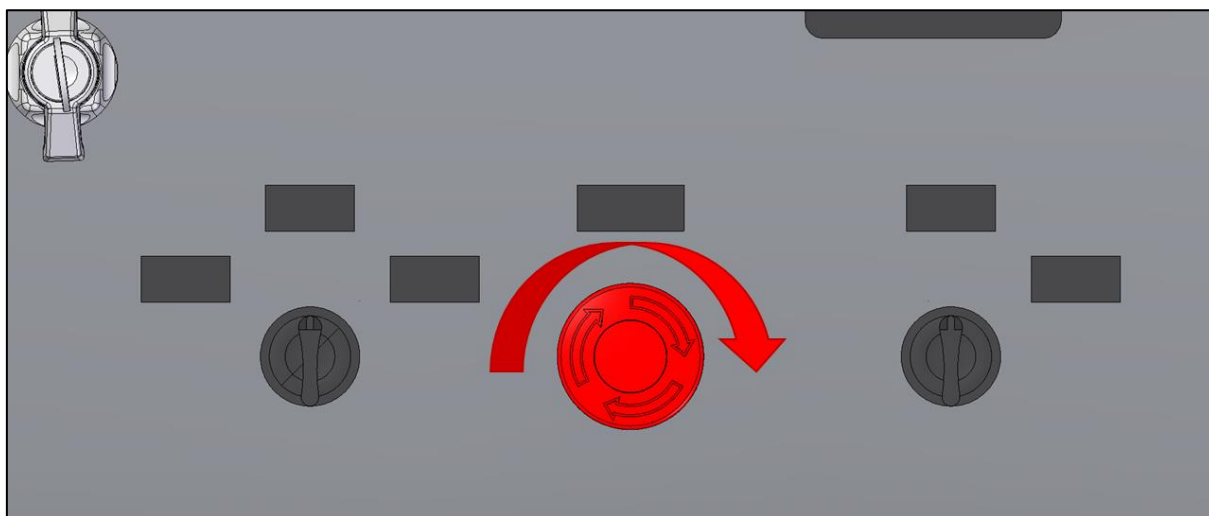


Figure 22 - Emergency Button in the “NEUTRAL” position.

F. Position the main switch to the “ON” position – Rotate it to the clockwise.

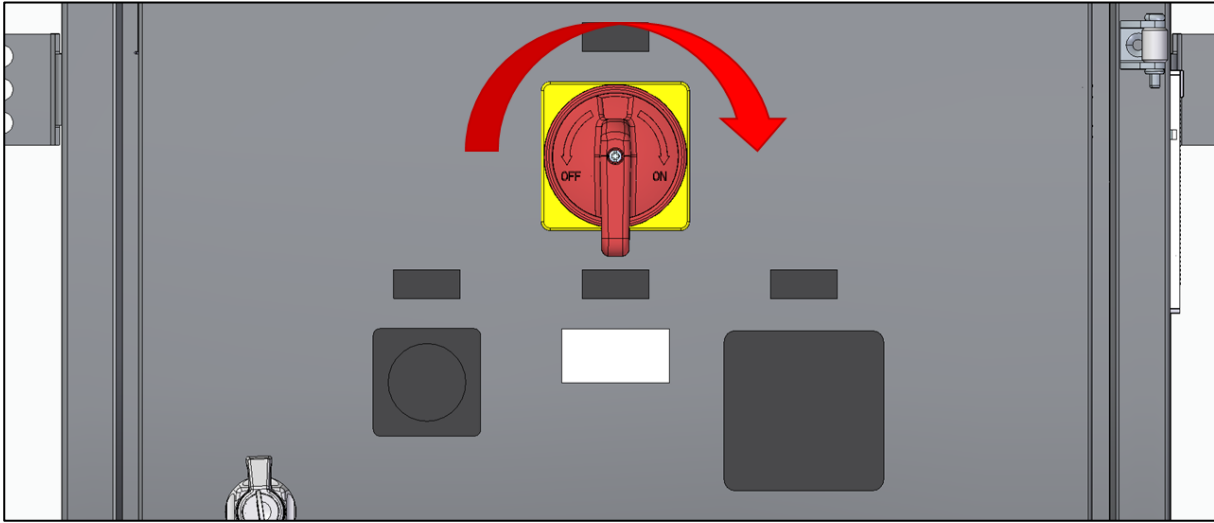


Figure 23 - Main switch in the “ON” position.

G. The BasicControl will now be energized and ready for operation.

10.4. Operation Hour Meters

To monitor the duration of equipment operation, BasicControl features two components: the Partial Hour Counter and the Total Hours Counter.

10.4.1. Partial Hour Counter

The partial hour counter allows the user to obtain information about the cabinet operating time since the last reset. To reset it, simply press the RESET button once, as shown in Figure 24 below.

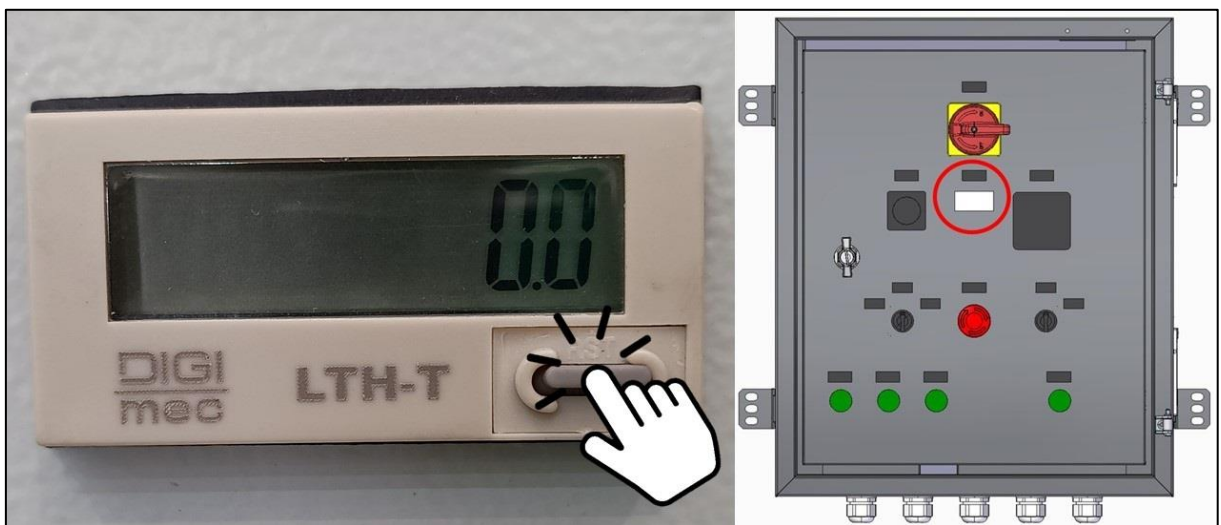


Figure 24 - Reset performed on the partial hour counter.



Once it's reset, the equipment does not allow you to reverse the action.

10.4.2. Total Hours Counter

The total hours counter provides information about the total time the cabinet has been in operation, starting from the first time it was turned on. It is important to emphasize that, due to quality testing procedures at the factory, this counter will always display a total number of hours greater than zero (0).

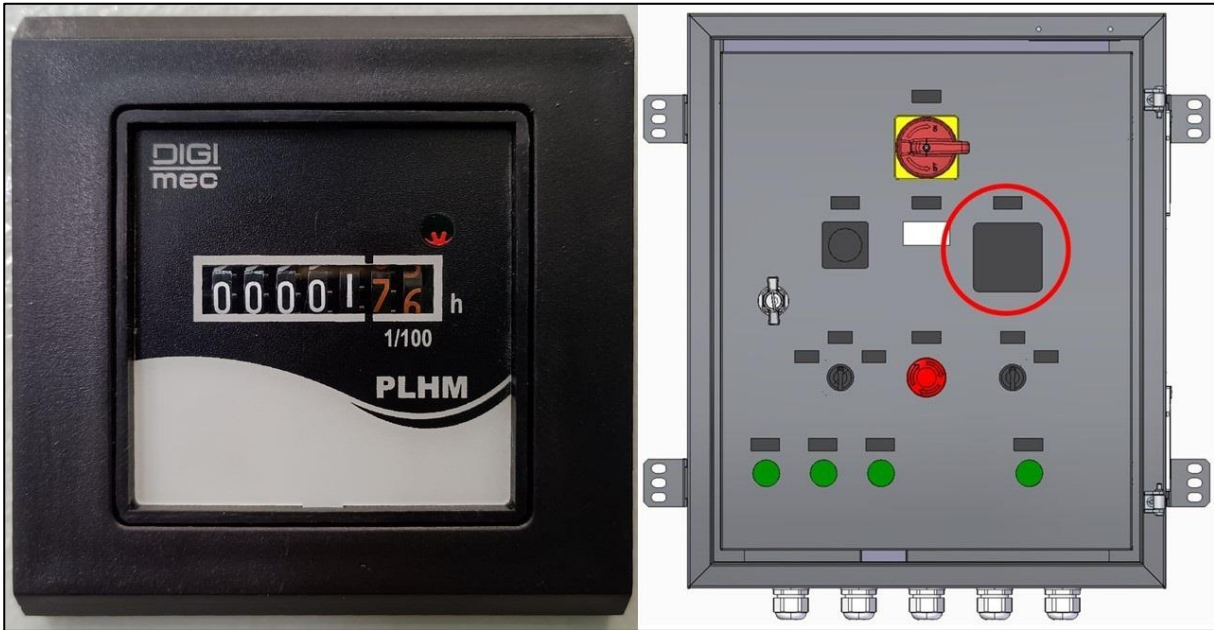


Figure 25 - Total operating hours counter.

10.5. Emergency

If during operation any abnormality is observed in the pivot movement or in the functioning of any equipment that makes up the system, and it is necessary to stop the operation abruptly, simply press the Emergency Button.

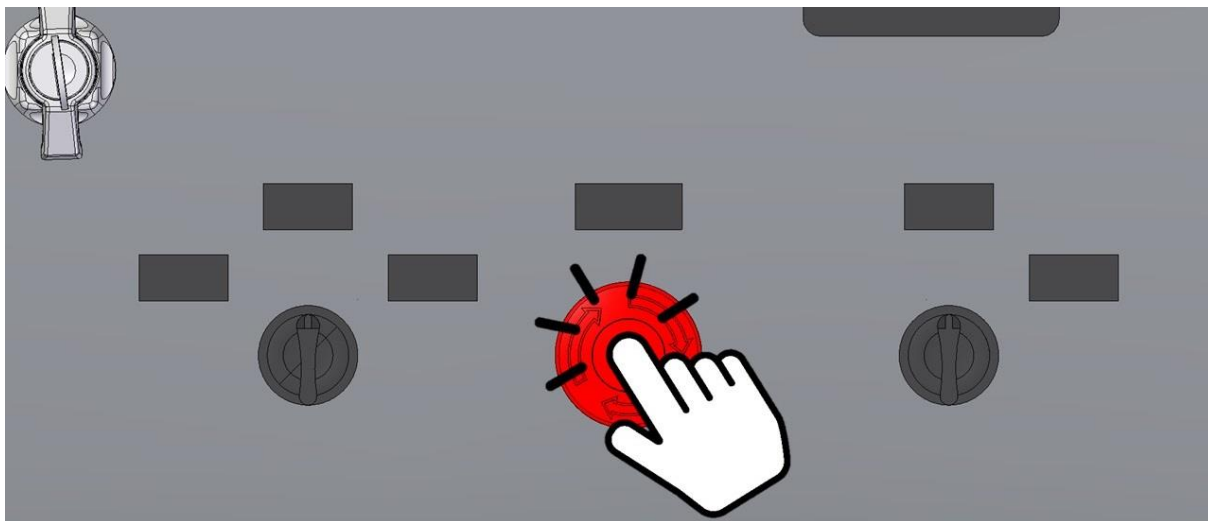


Figure 26 - Activation of the Emergency Button.



The push button must be pressed all the way down for the correct operation of the mechanism.

To put the pivot back into operation, it is necessary to rotate the push button to the clockwise. This way, it will return to the NEUTRAL position, allowing the panel to be energized again.

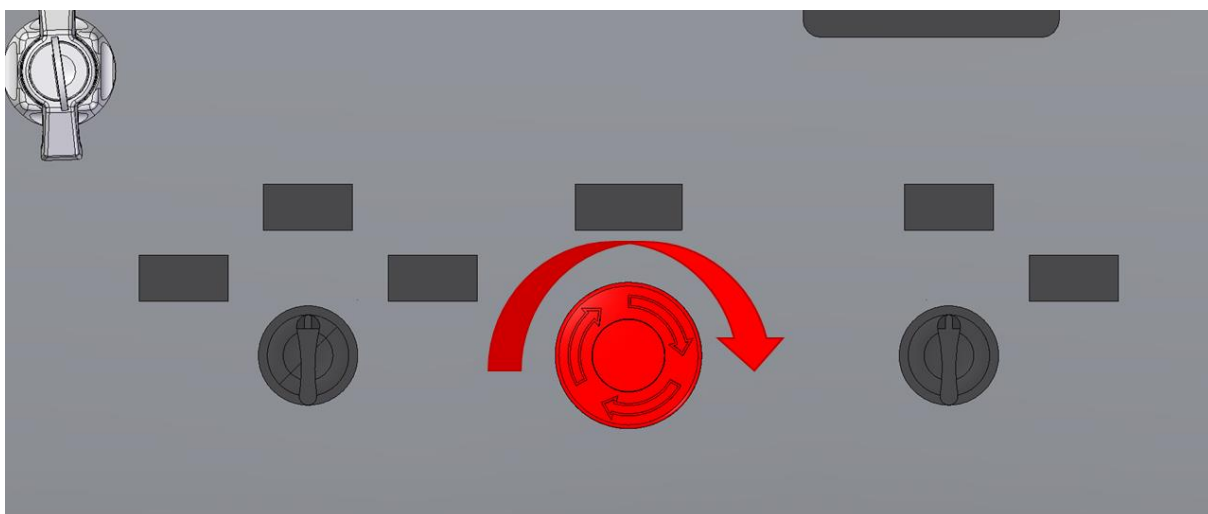


Figure 27 - Returning the Emergency Button to the "NEUTRAL" position.

10.6. Phase Detection LEDs

BasicControls feature three LEDs that indicate the status of each of the three phases powering the panel. In the event of any abnormalities in the power grid (such as voltage drops), the LED corresponding to the affected phase will turn off. These indicator lights are valuable tools for identifying operational failures in the panel due to electrical grid issues.

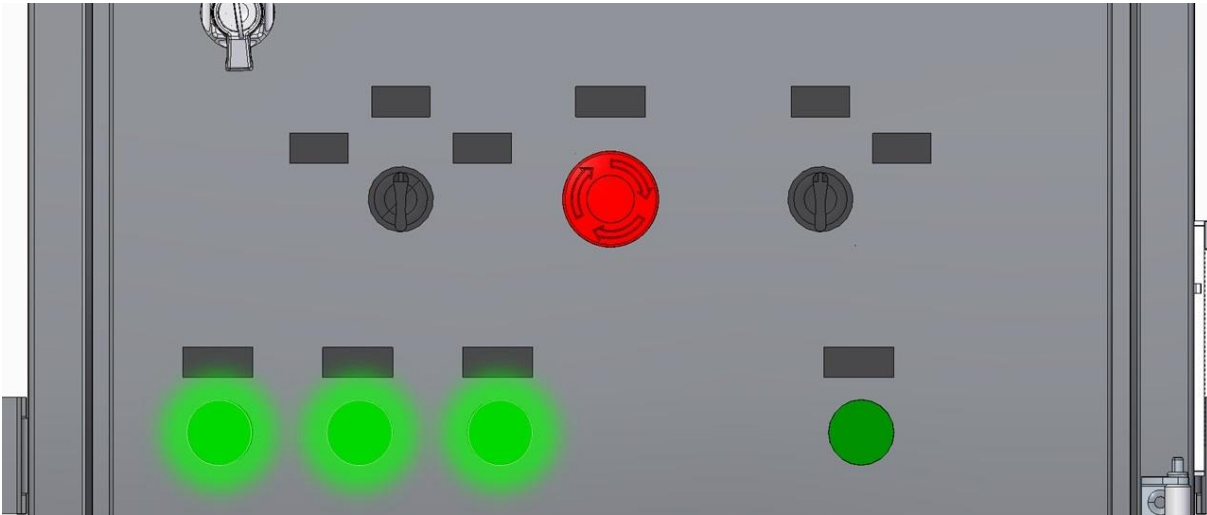


Figure 28 - All LEDs on, indicating normality in all three phases.

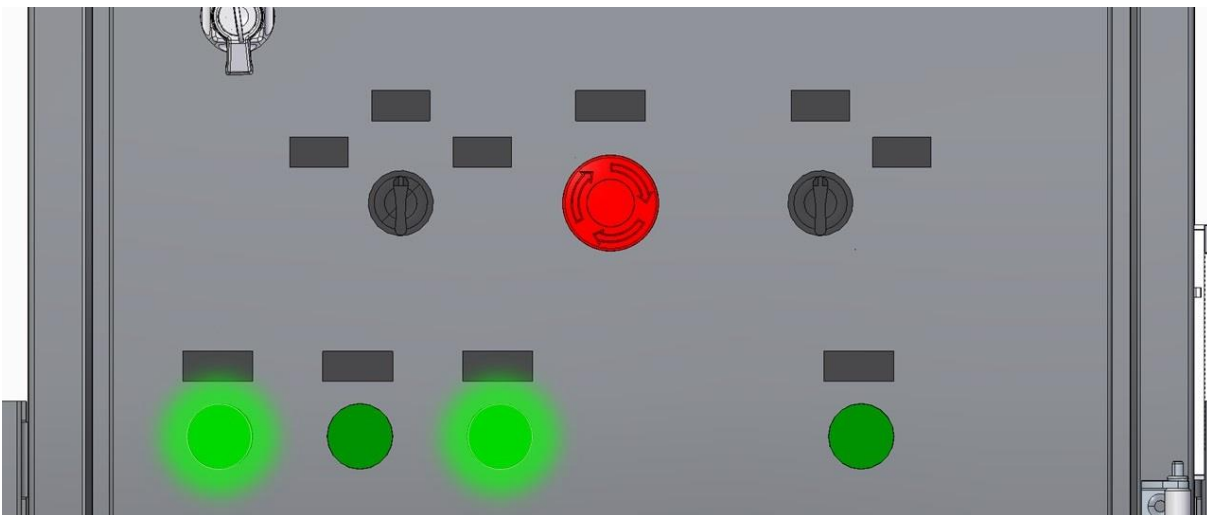


Figure 29 - LED 05H2 off, indicating an anomaly in phase two.

10.7. Override SAFETY

The analogue SAFETY OVERRIDE selector switch is responsible for controlling the status of the SAFETY electrical circuit (closed or open), which is responsible for stopping and protecting the central pivot in the event of critical misalignment.

- SAFETY circuit closed (The LED 06H1 remains lit) – The selector switch should remain in the "ON" position. This condition should be maintained during normal pivot operation, which will continue moving as long as it remains properly aligned.

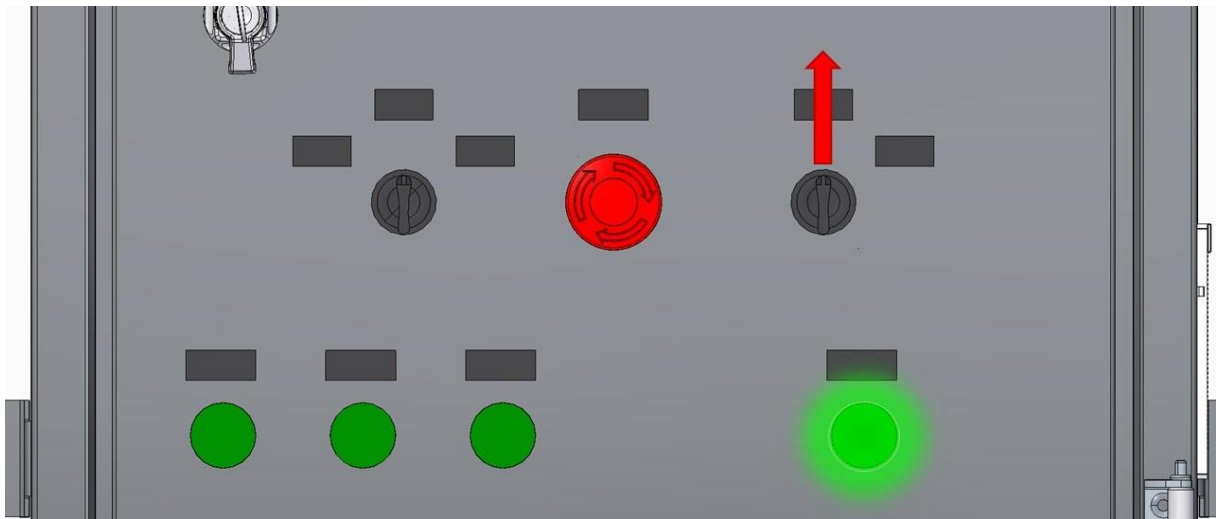


Figure 30 - Safety activated.

If there is a critical misalignment of the pivot, it will stop, and the indicator light will turn off. The pivot can only resume operation after the alignment procedure is performed and a new command is sent.

- Safety circuit open (the LED 06H1 turns “OFF”) – The selector switch should be turned to the “OFF” position.

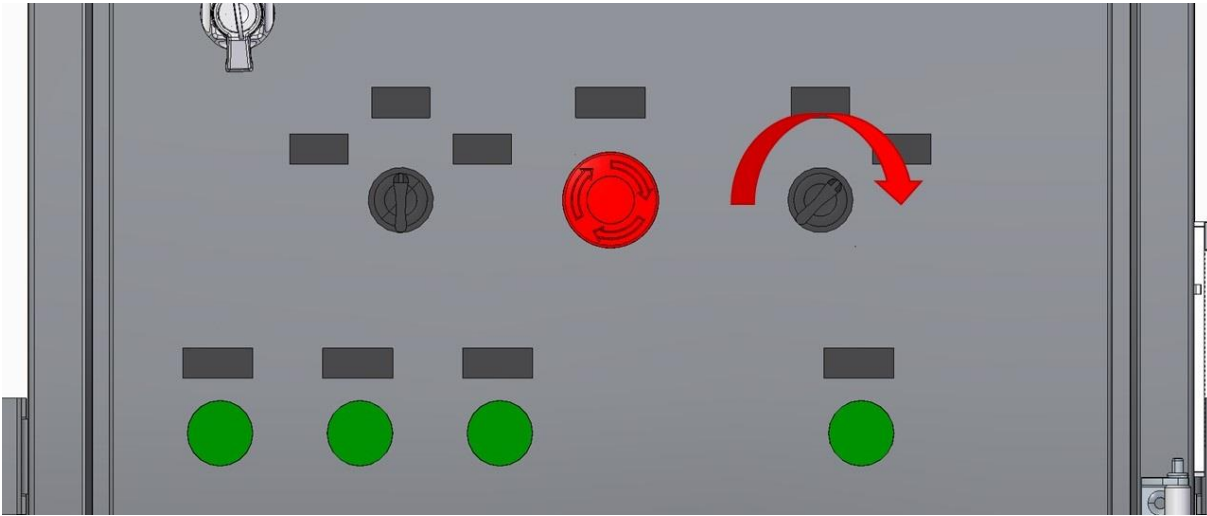


Figure 31 - Safety disabled.

In this mode, the SAFETY signal will be overridden, and it will not be possible to move the pivot using the FORWARD/REVERSE selector switches. This function is exclusively intended for the pivot alignment procedure.



When disabling the SAFETY, it is important for the operator to stay close to the pivot to prevent accidents.



The SAFETY should only be disabled in specific situations; under normal operating conditions, it should remain in the “ON” position.

11.Commands – FORWARD, REVERSE and STOP

All commands for pivot movement in FORWARD, REVERSE, or STOP are performed through the analogy selector switch, as demonstrated in the following figures:

- FORWARD Command – To make the pivot move forward, rotate the selector switch to the clockwise (45° from the neutral position).

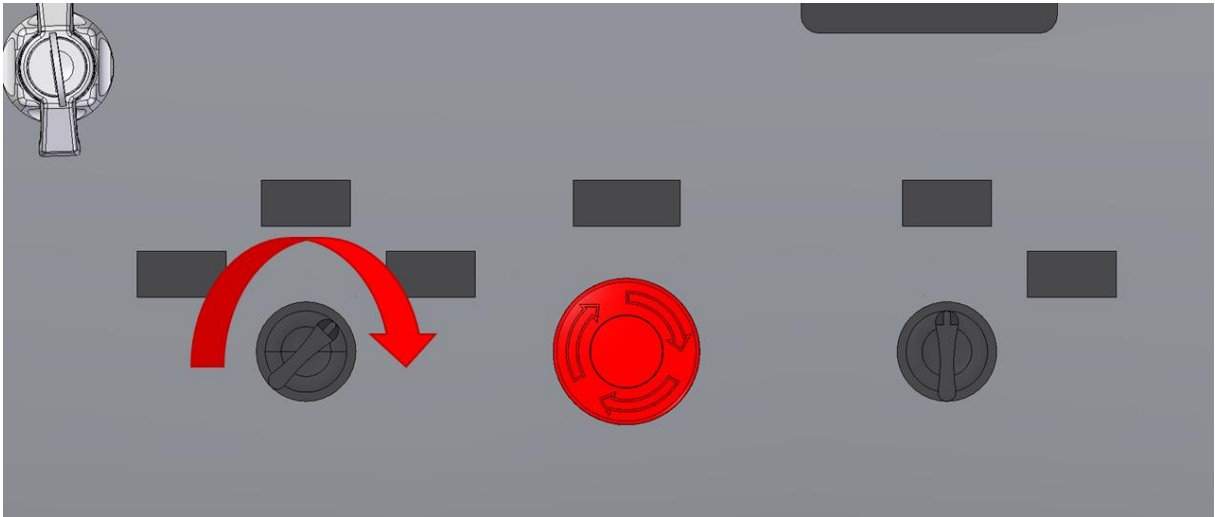


Figure 32 - FORWARD command.

- REVERSE Command – To make the pivot move in reverse, rotate the selector switch to the left (45° from the neutral position).

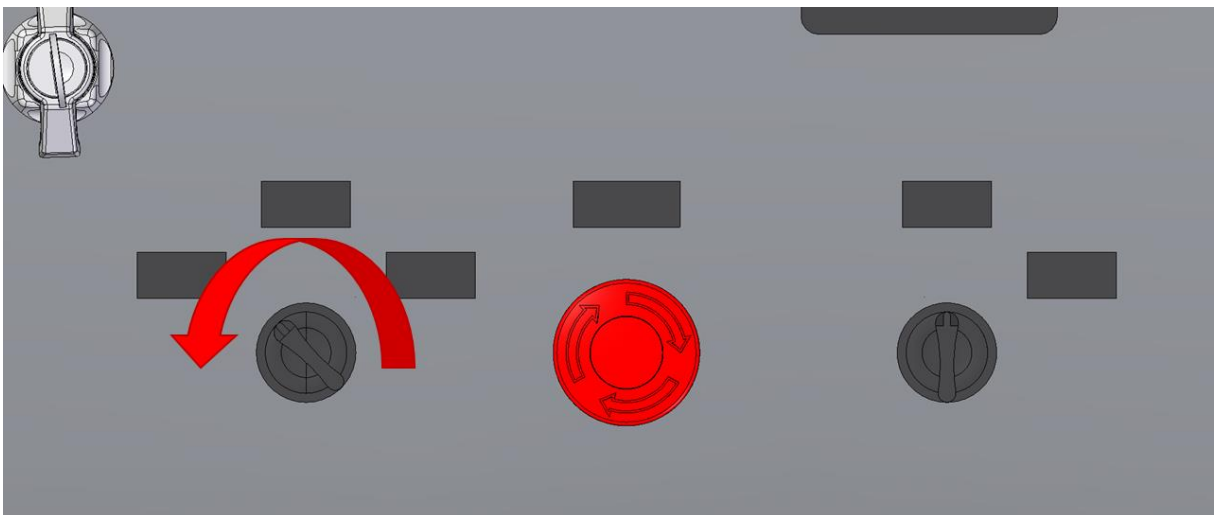


Figure 33 - REVERSE command.

- **STOP Command** – To stop the pivot movement, simply return the selector switch to the NEUTRAL position.

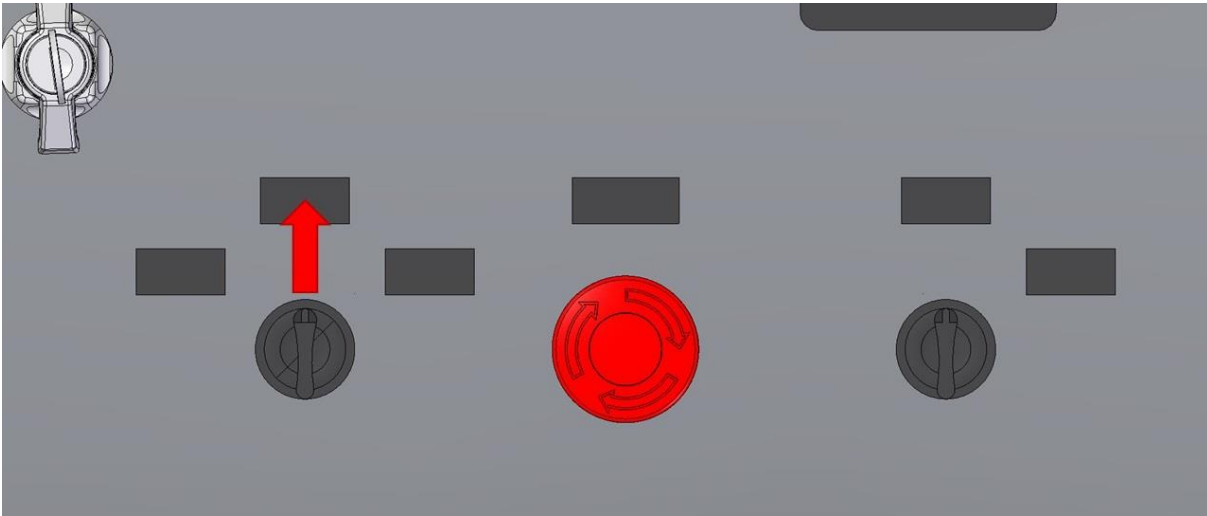


Figure 34 - STOP command.



The pivot will only start moving after sending the FORWARD or REVERSE commands, if the percentage is configured with a value other than ZERO.



To prevent accidents, it is important to restrict the circulation of people and equipment within the pivot's operating area.



If any abnormalities are observed, consult Topic **14-Failures and Possible Causes**.

The control of pumping systems occurs manually and is completely independent of the BasicControl. Therefore, for irrigation to take place, the water pump must be manually activated.

12.Alignment Procedure

When the angle between the towers exceeds the safety values (defined by the pivot manufacturer), the SAFETY circuit is opened, and the operation of the pivot is halted. This condition can be confirmed if the LED 06H1 turns off during operation. If this condition is encountered, follow these steps:

- A. Turn the SAFETY OVERRIDE selector switch to the “OFF” position.

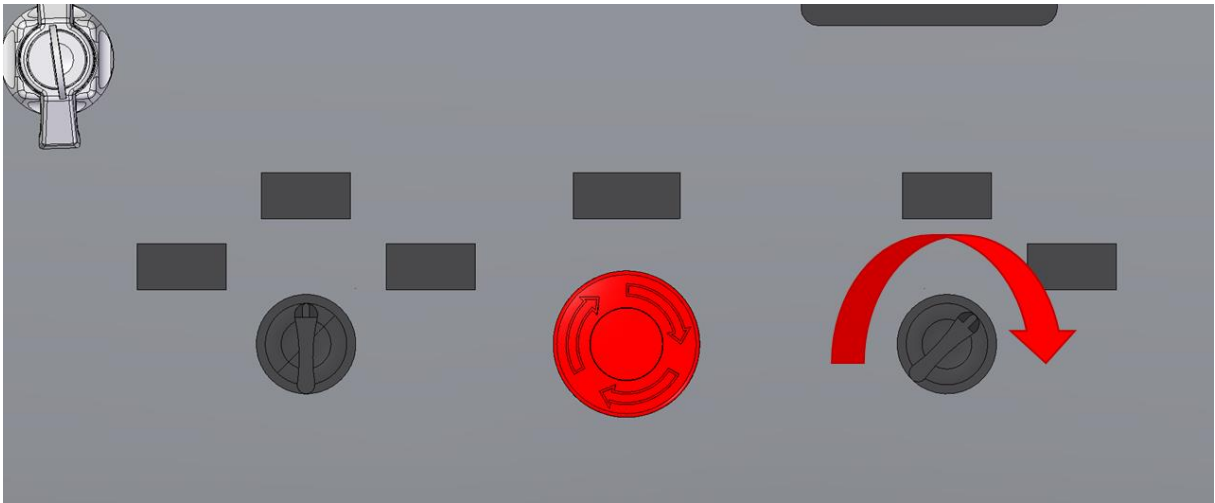


Figure 35 - Safety override.

- B. Select the position in which the misaligned tower should be moved (FORWARD or REVERSE).

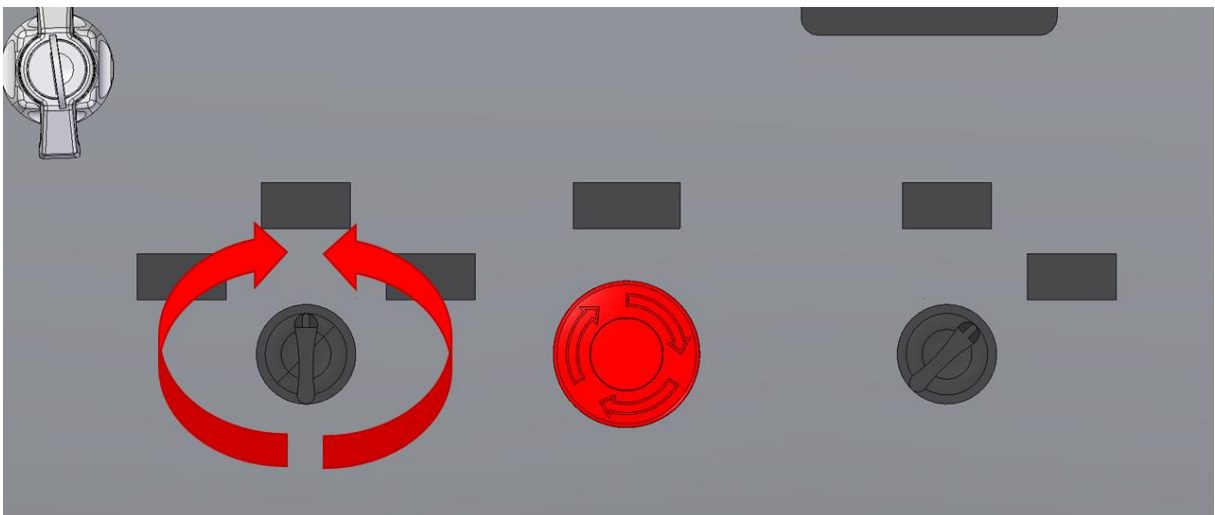


Figure 36 - Direction in which the pivot will move during the ALIGNMENT process.

C. Access the Control Box of the misaligned tower and manually activate the contactor.

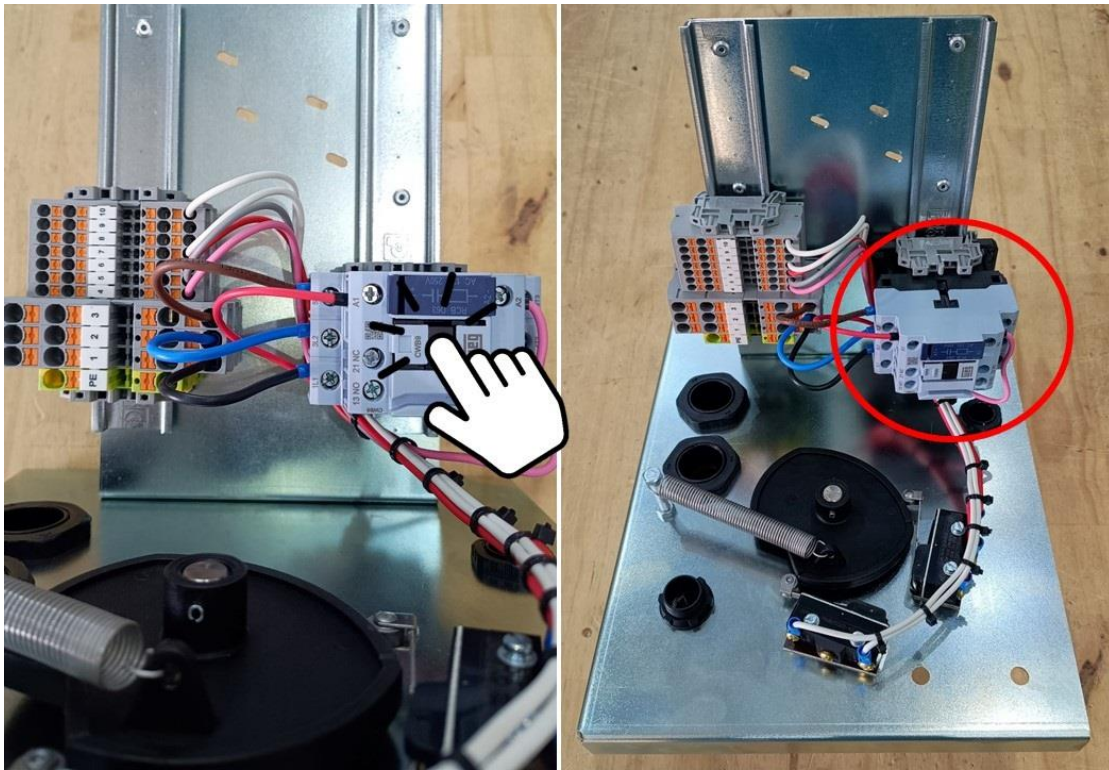


Figure 37 - Activation of the contactor to move the drive tower.



The contactor must be held down until the safety microswitch is deactivated (the pivot exits the MISALIGNED condition).

D. After the pivot has been realigned, select the direction on the panel in which the operation should continue.

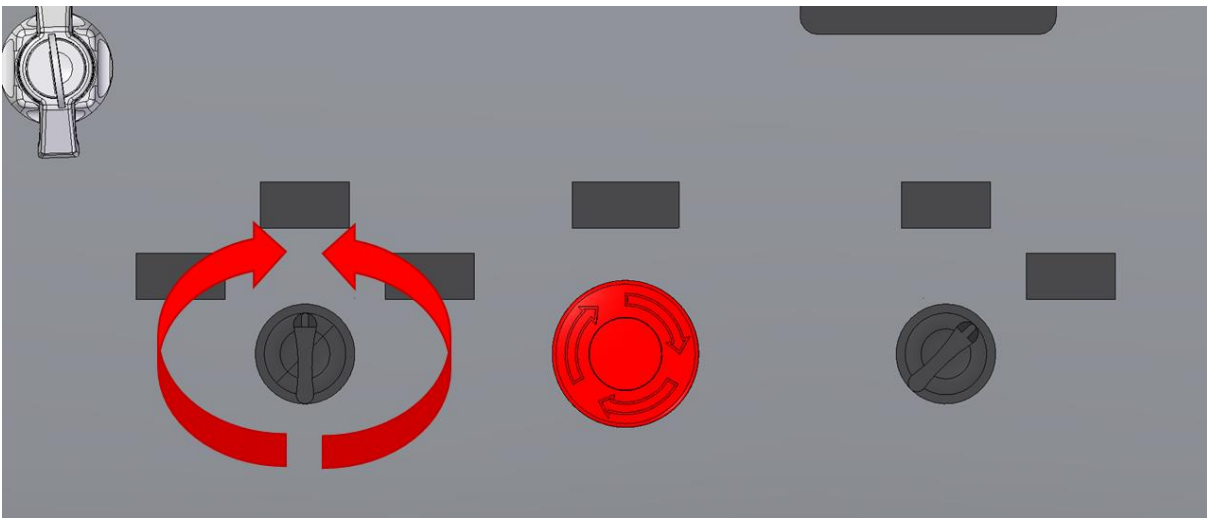


Figure 38 - Selection of pivot operation direction.

- E. Return the SAFETY OVERRIDE switch to the “OFF” position.

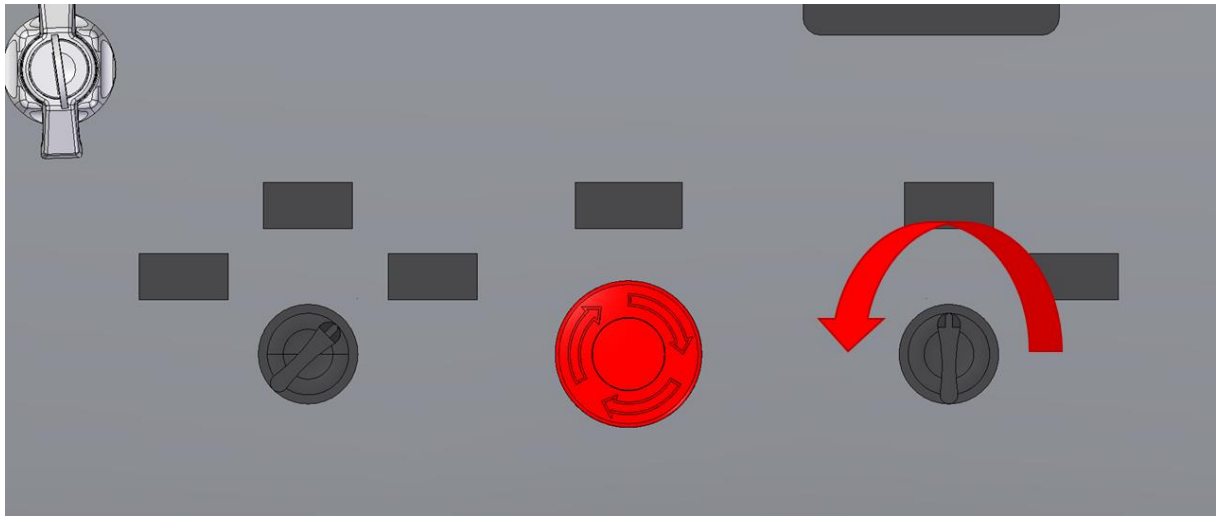


Figure 39 - Safety override DEACTIVATED.

- F. The pivot will resume its normal operation.

13. Tests

To ensure that the panel and the entire irrigation system are functioning correctly, it is necessary to perform some tests before putting the equipment into operation. Follow these steps for the tests:

A. Send a FORWARD command – The pivot should move forward. Wait a few seconds for all towers to start moving.



It is recommended that, during movement tests, the percentage timer values be adjusted to observe the speed variation in the operation of the Last Tower.



The command should be performed with the pumping system both ON and OFF to ensure that the entire system is operating correctly.

B. Send a STOP command – The pivot should stop moving.

C. Send a REVERSE command – The pivot should move in reverse. Wait a few seconds for all towers to start moving.

D. Press the Emergency Button – The pivot should stop immediately.

E. Return the Emergency Button to the neutral position – The pivot should resume operation.

F. Turn the SAFETY OVERRIDE selector switch to the "ON" position – The pivot should stop, and LED 06H1 should turn off.

G. Return the SAFETY OVERRIDE selector switch to the "OFF" position – The pivot should resume operation, and LED 06H1 should turn on.

H. Disconnect the SAFETY output cable from terminal 07 (simulating misalignment) – The pivot should stop, and LED 06H1 should turn off.

I. Reconnect the SAFETY output cable to terminal 07 – The pivot should resume operation, and LED 06H1 should turn on again.

J. Send a STOP command – The pivot should stop moving.

K. If no abnormalities are observed, the cabinet is ready for normal operation.



It is recommended to keep the equipment in motion until the entire system has been inspected and confirmed to be in perfect operating condition.



If any abnormalities are observed, consult Topic **14-Failures and Possible Causes**.

14.Failures and Possible Causes

Due to the complexity of pivot operation and the environment in which it is installed, the equipment is subject to various factors that can cause it to enter a failure mode, including:

14.1. Pivot Stopped due to a Safety Failure

PIVOT STOPPED DUE TO A SAFETY FAILURE	
POSSIBLE CAUSES	TROUBLESHOOTING
Critical misalignment between towers	- Follow the ALIGNMENT procedure detailed in topic 12 Alignment Procedure .
Obstacles on the tire tracks	- Remove obstacles. - Follow the ALIGNMENT procedure detailed in topic 12 Alignment Procedure .
Low tire pressure	- Check for leaks in the tires. - Calibrate the tires correctly. - Follow the ALIGNMENT procedure detailed in topic 12 Alignment Procedure .
Issues with gearmotors	- Verify the motor reducer conditions. - Perform necessary maintenance. - Replace if needed.
Defective control box	- Contact technical support for investigation.

Table 6 - Failure (Pivot stopped for SAFETY).

14.2. Panel Does Not Turn On

PANEL DOES NOT TURN ON	
POSSIBLE CAUSES	TROUBLESHOOTING
Issues with the power supply network	- Normalize the power supply. - Check the local power supply network.
Emergency button activated	- Return the emergency button to the "NEUTRAL" position.
Main switch in the "OFF" position	- Position the main switch to "ON."
Circuit breakers turned off	- Turn on the circuit breakers.
Burnt fuse in the isolator	- Replace the fuses.
Incorrect electrical connection	- Verify the connections.

Table 7 - Failure (Panel does not turn on).

14.3. Pivot Stopped Suddenly

PIVOT STOPPED SUDDENLY	
POSSIBLE CAUSES	TROUBLESHOOTING
"SAFETY" Failure	- Follow the ALIGNMENT procedure detailed in topic 12 Alignment Procedure.
Power Outage	- Reconnect the circuit breakers. - Send a new command.
Failure in the FORWARD (06Q3) or REVERSE (06Q4) contactors	- Verify the electrical connection of the contactors. - Check the electrical connection of the panel. - Replace the contactors.

Table 8 - Failure (Pivot suddenly stalled).

14.4. Panel Shut Down Abruptly

PANEL SHUT DOWN ABRUPTLY	
POSSIBLE CAUSES	TROUBLESHOOTING
Electrical surges caused by power supply fluctuations.	- Reconnect the circuit breakers. - Replace the isolator fuse. - Replace burnt items.
Electrical surges caused by lightning discharge	- Reconnect the circuit breakers. - Replace the isolator fuse. - Replace burnt items.
Condition of the network different from the configuration of the Three Phase Control Relay	- Review the configurations of the Three Phase Control Relay. - Analyse the conditions of the power supply network.

Table 9 - Failure (Panel shutting down suddenly).

15. Extra Information and Care

In this topic, you will find essential additional information and precautions for the use and maintenance of your cabinet. These guidelines are crucial to ensure not only satisfactory performance but also durability and safety during system operation. Paying attention to these complementary details is essential for maximizing the benefits of your investment.

15.1. Electrical Power Quality

It is crucial to ensure the quality of the voltage supplied to the system to guarantee optimal performance and product longevity. Significant voltage fluctuations or an inadequate power supply can adversely affect cabinet functionality, leading to premature wear and/or operational failures. Providing the cabinet with stable electrical power within specified limits is essential to prevent issues caused by irregularities in the electrical grid, thereby contributing to preservation, extended lifespan, and system efficiency.

15.2. Periodic Maintenance

Regular inspections are essential to keep the equipment operating efficiently and safely. This topic addresses the importance of regular maintenance, providing guidance on how, when, and which procedures are necessary to ensure that all components are in good working condition. Adopting this care routine will extend the system's lifespan and prevent unexpected failures, thereby ensuring continuity and operational performance.

In addition to the points listed below, it is crucial to conduct a thorough inspection of the entire system when it remains idle for extended periods (for example, between harvests). This helps identify potential issues such as clearances, damaged parts, and other situations that could jeopardize the integrity of the irrigation system.

15.2.1. Cleaning the Inside of the Cabinet

Due to the characteristics of the components comprising the BasicControl, it is essential to keep the interior of the cabinet free from dirt, moisture, and impurities. This will help extend the equipment's lifespan and minimise the risk of electrical shorts.



The frequency of this procedure should be defined according to the local conditions where the pivot is installed (level of exposure to dirt) and the availability of labor for the task.



Whenever the operator performs any in-person interaction with the panel, it is advisable to consider this aspect.

15.2.2. Checking Panel Insulation

To prevent moisture, dirt, and small animals or insects from entering, it is essential to ensure that the panel is properly sealed. To achieve this, check the closure of the external door whenever it is opened and ensure that the cable glands (PGs) are tightened correctly.

15.2.3. Ventilation System Maintenance

To prevent obstruction of the panel's ventilation system and avoid overheating, it is essential to keep the grilles clear and replace the filter whenever necessary.

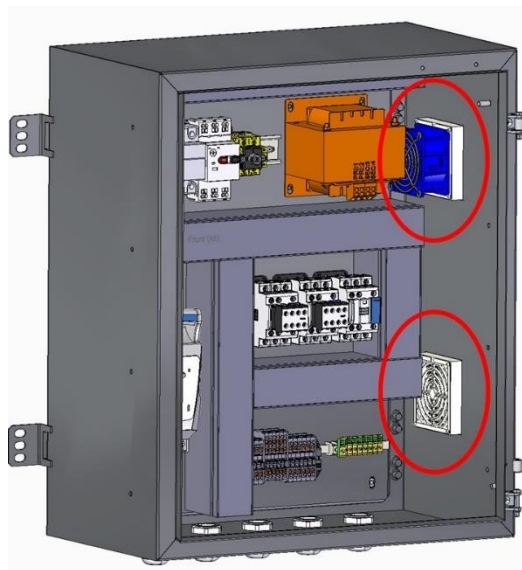


Figure 40 - Panel ventilation system.

15.2.4. Other Irrigation System Maintenance

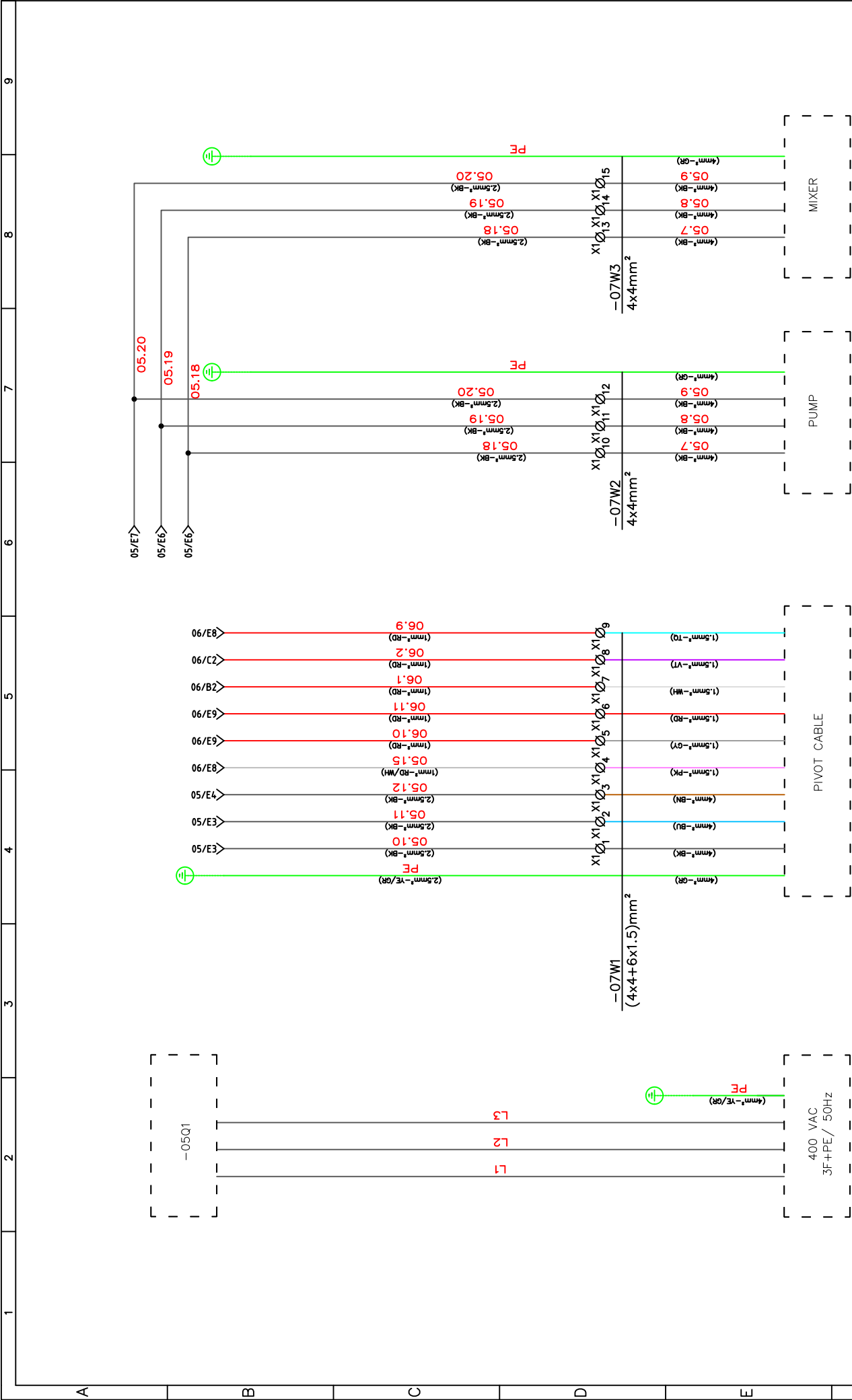
It is important to perform all pre-established maintenance and adjustments for the irrigation system according to the instructions in the Bauer central irrigation pivot manual.

1	2	3	4	5	6	7	8	9
A	 A BAUER GROUP COMPANY 							
B								
C	PROJECT: G02001408 BasicControl							
D	REVIEWS REVISION 00: INITIAL REVISION 01: DIODES ADDED 3-PHASE RELAY ADDED							
E	PROJECT CHARACTERISTICS SUPPLY VOLTAGE: 400 VAC / 50 Hz (3PH+PE) RATED CURRENT: 16 A CONTROL VOLTAGE: 220 VAC DEGREE OF PROTECTION: IP 65							
F	RESPONSABILITIES IRRICONTROL PROJECT NUMBER: G02001408							
REVISION 01 00				DIODES ADDED INITIAL		09/09/2024 01/05/2024		DATE
DESCRIPTION				NORM		DESIGNER PROJECT		TIAGO GALLO ROGERIO CORREA ROGERIO CORREA NBR IEC-61439-1
 A BAUER GROUP COMPANY				 FOR A GREENER WORLD		DESCRIPTION: COVER		REFERENCE: G02001408 PROJECT NUMBER: G02001408
						SC: S/E		PAGE: 01 OF: 10

[illegible]

1	2	3	4	5	6	7	8	9
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	CONDUCTORS JUNCTION		CONTACT NORMALLY OPENED	2 POLES PHOTOELECTRIC SENSOR CONTACT NORMALLY OPENED		MECHANICAL END STOP CONTACT NORMALLY OPENED		INDICATION OF FIELD EQUIPMENT
	TERMINAL		CONTACT NORMALLY CLOSED	2 POLES PHOTOELECTRIC SENSOR CONTACT NORMALLY CLOSED		MECHANICAL END STOP CONTACT NORMALLY CLOSED		PANEL'S VENTILATION SET
	PLUG-SOCKET CONNECTOR (MALE-FEMALE)		REVERSER CONTACT RELAY	3 POLES PHOTOELECTRIC SENSOR CONTACT NORMALLY OPENED		PRESSURESTAT		LAMP FOR LIGHTING PANELS (FLUORESCENT)
	FUSED TERMINAL WITHOUT LED		CHANGE-OVER SWITCH NO	3 POLES PHOTOELECTRIC SENSOR CONTACT NORMALLY CLOSED		THERMOSTAT		LAMP FOR LIGHTING PANELS (INCANDESCENT)
	FUSED TERMINAL WITH LED		IMPULSE PUSHBUTTON	THREE PHASE TRANSFORMER		FLOWSTAT		DC POWER SUPPLY TRANSFORMER
	GLASS FUSE		IMPULSE PUSHBUTTON ILLUMINATED NO	SINGLE PHASE COMMAND TRANSFORMER		RC SUPPRESSOR		CERAMIC CAPACITOR
	DIAZED / NH FUSE		CHANGE-OVER SWITCH 2 POSITIONS	CURRENT TRANSFORMER		LINE FILTER		ELECTROLYTIC CAPACITOR
	FUSE WITH CONTACT FOR ALARM		CHANGE-OVER SWITCH 3 POSITIONS	DEPARTURE TRANSFORMER		SHIELD MESH		ANALOGIC INSTRUMENT
	THERMOMAGNETIC CIRCUIT-BREAKER		CHANGE-OVER SWITCH 3 POSITIONS WITH RETURN TO CENTER	THREE PHASE INDUCTION MOTOR		GROUND		DIGITAL INSTRUMENT
	CHANGE-OVER SWITCH 3 POLES SWIVEL		MUSHROOM SWITCH (EMERGENCY)	CONTINUOUS CURRENT MOTOR		RESISTOR		ELECTRONIC TEMPERATURE CONTROLLER / INDICATOR
	FUSE DISCONNECTOR		THREE PHASE VARISTOR SUPPRESSOR	SINGLE PHASE INDUCTION MOTOR		POTENCIOMETER		AC / AC OPTICAL INPUT
	CHANGE-OVER SWITCH 3 POLES SWIVEL WITH FUSES		2 POLES INDUCTIVE SENSOR CONTACT NORMALLY OPENED	INDUCTOR		SHUNT		AC / DC OPTICAL INPUT
	CIRCUIT-BREAKER THERMOMAGNETIC ADJUSTABLE		2 POLES INDUCTIVE SENSOR CONTACT NORMALLY CLOSED	SOLENOID VALVE (PNEUMATIC OR HIDRAULIC)		BATTERY		THYRISTOR OPTICAL OUTPUT COUPLER
	LEAKAGE RELAY		3 POLES INDUCTIVE SENSOR CONTACT NORMALLY OPENED	RELAY'S COIL OR CONTACTOR		BATTERIES SET		OUTPUT TO TRANSISTOR OPTICAL COUPLER
	OVERVOLTAGE RELAY		3 POLES INDUCTIVE SENSOR CONTACT NORMALLY CLOSED	SIGNALLER		RECTIFYING DIODE		OUTPUT TO RELAY COUPLER
	UNDERVOLTAGE RELAY		2 POLES CAPACITIVE SENSOR NORMALLY OPENED CONTACT	SERIES CONNECTED SIGNALLING LAMP WITH COUPLED RESISTOR		RECTIFYING BRIDGE		GROUND TERMINAL (PE)
	OVERCURRENT RELAY		2 POLES CAPACITIVE SENSOR NORMALLY CLOSED CONTACT	SOUND ALARM		POWER OUTPUT AUXILIARY SOCKET 2P+G		LEVEL RELAY
	THERMAL RELAY		3 POLES NORMALLY OPENED CONTACT	AUDIOVISUAL ALARM		DC/AC CONVERTOR		THREE PHASE AC GENERATOR
	NETWORK MONITOR LACK OF PHASE		3 POLES NORMALLY CLOSED CONTACT	THERMOCOUPLE		MOTOR'S ELECTROMECHANIC BREAK SET		P.F. CAPACITOR'S THREE PHASE CELL

[illegible]



REVISION		DESCRIPTION		DATE		NORM		PROJECT		DESIGNER		REVIEWED		TIAGO GALLO		ROGERIO CORREA		ROGERIO CORREA		NBR IEC-61439-1	
01	DIODES ADDED			09/09/2024																	
00	INITIAL			01/05/2024																	
SC:		REFERENCE:		DESCRIPTION:		CONNECTION PLAN		PROJECT NUMBER:		S/E		PAGE: 07		OF: 10		G02001408		G02001408		G02001408	



1		2		3		4		5		6		7		8		9	
CREATION DATE: 22/10/24																	
BILL OF MATERIALS																	
TIME : 13:27:57																	
A																	
B																	
C																	
D																	
E																	
F																	



Irricontrol

A BAUER GROUP COMPANY