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### TEMPERATURE CONTROLLER FOR SWIMMING POOLS

This equipment allows the activation of equipment that has a current of up to 16 amps without contactor. Controls the temperature based on the temperature difference between the collector sensor (Roof) and the pool sensor (Reservoir), seeking to reduce this difference until it reaches the temperature programmed in the equipment.

It also has anti-freeze protection of the pipes and protection for overheating, avoiding the passage of overheated water through the pipes.

### TECHNICAL SPECIFICATIONS

PROTECTION RATING	IP63 - Protected against dust and water splashes
MAX. CAPACITY ACTIVATION	16A/220Vac (Resistive Load) or 2hP/220Vac (Inductive - Motors)
POWER SUPPLY	12Vdc / 200 ma
MEASURING RANGE	0 °C to 100 °C
OPERATION TEMPERATURE	2 to 45 °C
DIMENSIONS OF THE EQUIPMENT	
NTC 10K SENSOR	Ø 5mm – 30mm

### GUARANTEE

BRUSTEC equipment is warranted for one year as of the store sale invoice, if installed in accordance with the manual and covering only factory defects that will be evaluated by the company's service department.

#### HOW TO PROCEED IF THERE IS ANY POTENTIAL DEFECT ON YOUR EQUIPMENT

- Contact the store that sold the equipment, requesting support to find a possible solution or, if possible, a visit on-site of the technician for analysis.
- If it is not possible to find the cause of the problem, contact the service department in our company and explain the problem so that some tests can be performed to detect the defect.

Contact phone: (47) 3350-3770

E-mail: [assistencia@brustec.com.br](mailto:assistencia@brustec.com.br)

### IMPORTANT INFORMATION

- ✓ The NBR5410 standard recommends the installation of a suppressor filter (RC Type) in parallel with the relay or contactor when activating inductive loads, as they generate interference and noise that can affect the equipment and reduce its useful life.
- ✓ Avoid passing the sensor cable next to electrical cables as much as possible, otherwise problems may occur.
- ✓ The equipment does not accompany power supply and temperature sensors.
- ✓ Use a protection system for the electrical circuit between the relay and the motor. Otherwise, when there is a problem with the motor, there may be damage to the temperature controller. And also DR protection for source.
- ✓ When the controller is turned on, it will show the temperature of the pool and collector (roof).

### SOLVING FAILURES





- Equipment connected to the relays does not work: Check the supply voltage, connection of the cables to the terminal, physical integrity of the shunt cables and splices, check the protection system if it is armed.
- Alarms: Check this manual in the table for the cause of each alarm and its possible solution.
- Parameters: Some protection parameters that exist can prevent the operation of the equipment and the activation of the motor, so the values shown with what is configured to understand the situation must be checked.
- Faulty sensors: If it shows any sensor error (as described in this manual), it should be seen if there was any cable breakage, wire oxidation or loosening of the attachment terminal and also check if the sensor is having any resistance value close to 10Kohms with a multimeter.

### IDENTIFICATION OF BUTTONS



A   M	You choose between Manual (LED Off) and Automatic (LED Flashing) mode. By pressing this button you have access to the parameters MENU.
↓	Key to reduce values.
↑	Key to increase values
B	Key to manually turn on the pump if your equipment is in MANUAL mode.

## PARAMETER MENU

To access the PARAMETER MENU press the “” button for a few seconds until it flashes and releases, then press the “” button until the led flashes and release. Then it will show the first parameter according to the table below. To follow in the MENU press “A | M” and to change values press the “ or ” keys.

PARAMETER	DESCRIPTION	STANDARD
<b>F - 01</b>	Temperature differential between sensors (S1 – S2) to start the pump.	10,0°C
<b>F - 02</b>	Temperature differential between sensors (S1 – S2) to start the pump.	5,0°C
<b>F - 03</b>	Protective temperature for collector anti-freezing (roof pipes and hoses). Engine starts when it reaches the programmed temperature for 5 minutes.	3,0°C
<b>F - 04</b>	Temperature to turn off pump in case of overheating in the collector (Roof), avoiding damage to the pipes. Pump only returns to operation when the temperature in the manifold is below parameter F-04.	70,0°C
<b>F - 05</b>	Desired pool temperature (SETPOINT). The controller in automatic mode will work for the pool to reach the temperature set in this parameter.	33,0°C
<b>F - 06</b>	Temperature hysteresis for pump actuation. EX: If F-05 = 30.0°C and F-06 = 2.0°C, the pump will shut down when the pool reaches 30.0°C and turn back on when it is below 28.0°C (30.0 – 2.0 = 28.0°C)	1,0°C

**F-07 and F-08 – Reserve parameters, without function.**

**Note: To exit the MENU wait a few seconds without any button pressed.**

## DESCRIPTION OF ERRORS

In the table below, the ERRORS x CAUSE are shown, if they ever show on your equipment.

<b>PISC ERROR</b>	Swimming Pool Sensor is in trouble
<b>COLE ERROR</b>	Collector Sensor (Roof) is in trouble
<b>ICE</b>	Water temperature in the Manifold (Roof) is close to zero and automatically the motor will start for 5 min for water circulation and prevent damage to hoses and connections.

## IDENTIFICATION OF TERMINALS



<b>12V</b>	<b>Power 12 vdc from Source</b>
<b>0v</b>	Negative 0v from Source
<b>S1</b>	Collector Sensor (Roof)
<b>Cm1</b>	Collector Sensor (Roof)
<b>S2</b>	Swimming Pool Sensor (Reservoir)
<b>Cm2</b>	Swimming Pool Sensor (Reservoir)
<b>PHASE</b>	Powering with Power Grid Phase
<b>NEUTRAL</b>	Connect with Net Neutral
<b>NEUTRAL</b>	Motor Neutral Output
<b>MOTOR</b>	Engine Power Output (Phase)

## ELECTRICAL INSTALLATION

The BRUSTEC temperature controller has a rated supply voltage of 12 vdc and we recommend the use of Switched Sources. Follows connection diagram already with the use of equipment for DR 30 ma protection.

In the electrical installation of Brustec equipment, it should be noted that it is expressly important that the splices of the wires do not have any contact with water or moisture, for this it is necessary that the installation is done by a qualified professional and that it also follows NR10 and the current rules. To avoid problems, we advise you to use high fusion tape and insulation tape to insulate any splices. Failure to comply with this procedure will consequently void the product warranty, in case of claim.

**WE ADVISE INSTALLATION OF THIS EQUIPMENT IN AN OPEN AND VENTILATED PLACE TO AVOID PROBLEMS LIKE MOISTURE AND OXIDATION WHICH NORMALLY OCCUR IN ENGINE ROOMS.**

**NOTE:** Sensors will be able to have their cables augmented with a 2x22awg cable, usually up to a limit of 100 meters.

