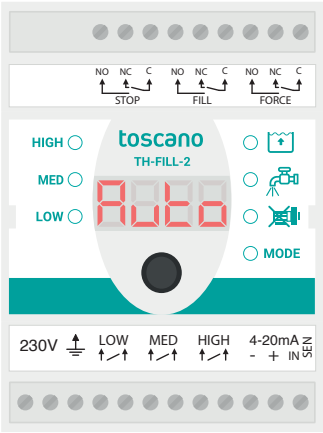
tcontrol

toscano

TH-FILL-2

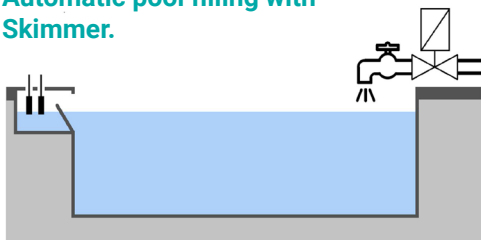
Ed. 2.25



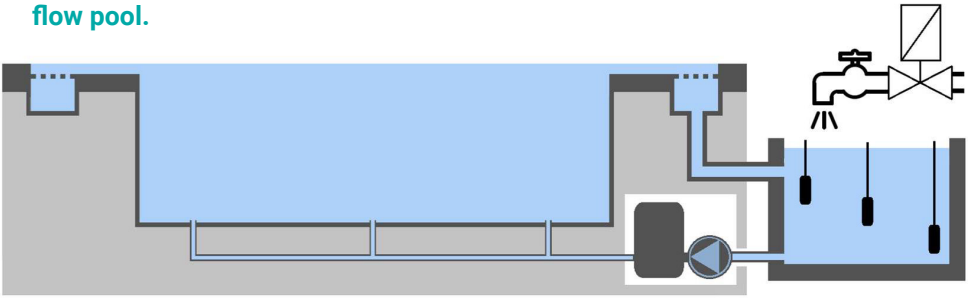
ENGLISH (EN) User manual

Control module for compensation tank or flexible tanks.

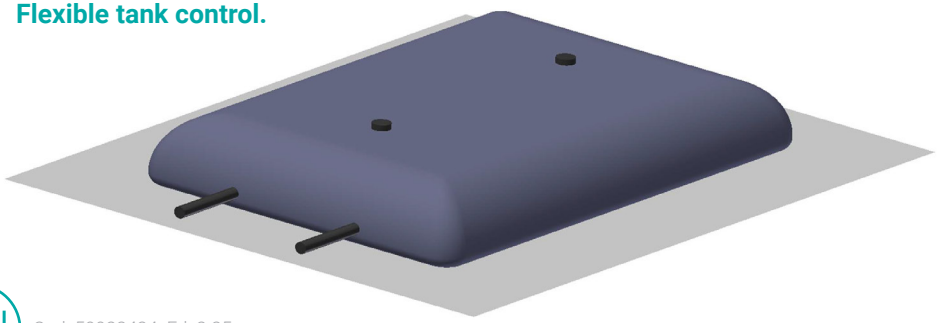
Automatic pool filling with Skimmer.



Compensation tank control for over-flow pool.



Flexible tank control.



ENGLISH (EN)

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SAFETY WARNING

ATTENTION! Before making any adjustments, it is essential to connect the motor or pump to the equipment to avoid unexpected trips of the underload protection (minimum load of 0.5 A). We recommend that you follow all approved safety procedures and instructions in your area when working with mains-connected equipment. The following provides important safety information. For the safe installation and operation of this equipment, make sure to read and understand all precautions and warnings. ⚠ **WARNING:** Before installing, operating, performing maintenance, or testing this equipment, read and understand the contents of this manual. Improper operation, handling, or maintenance could result in death, serious personal injury, and equipment damage. ⚠ **WARNING:** This equipment is not designed to safeguard human life. Follow all locally approved safety procedures and practices when installing or operating this equipment. Failure to do so could result in death, serious personal injury, and equipment damage. ⚠ **WARNING:** Dangerous voltages. Contact with electrical current can cause serious personal injury or death. Follow all locally approved safety procedures when working near high-voltage lines and equipment. ⚠ **WARNING:** This equipment requires periodic inspection and maintenance to ensure proper operation. If not properly maintained, it may fail to operate correctly. Improper operation could cause equipment damage and potentially result in personal injury. ⚠ **WARNING:** All connections must be made by a qualified person. There is a risk of electric shock if this precaution is not observed. ⚠ **WARNING:** Additional pump motor protection can be added when necessary during installation. ⚠ **WARNING:** If the equipment is used or modified outside the specifications provided by the manufacturer, Toscano is not responsible for improper use. The interior of the equipment should only be handled by our service personnel.



Installation must be carried out by a qualified electrician.



It is essential to read this technical manual before proceeding.



Danger: Electrical hazard



Important notice or recommendation

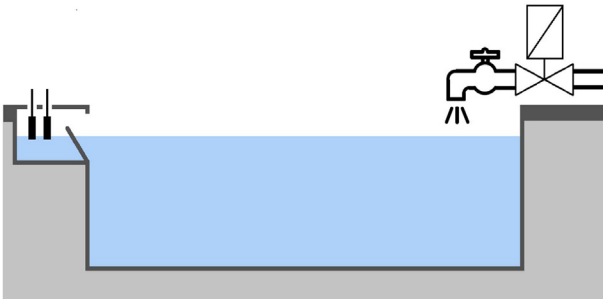


Mandatory action: Failure to comply may cause equipment or installation damage.



For more information

1.1. EQUIPMENT DESCRIPTION

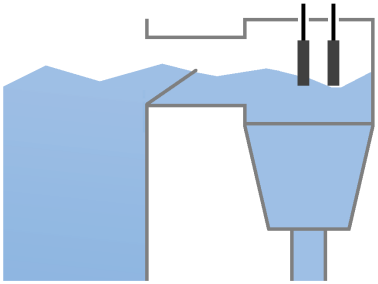


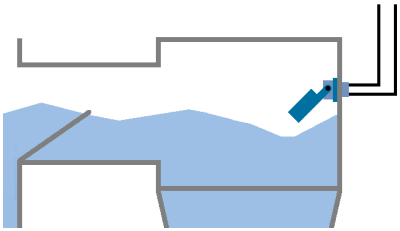
If the water level is too low, the pool pump begins to suck in air, which may cause damage to the filtration pump.

TH-Fill-2 allows you to solve all these issues automatically.

- Activates or deactivates the pool filling.
- Delays detection so that waves do not interfere.
- Limits the filling time in case of a fault.
- Stops the pool pump to prevent it from sucking in air.

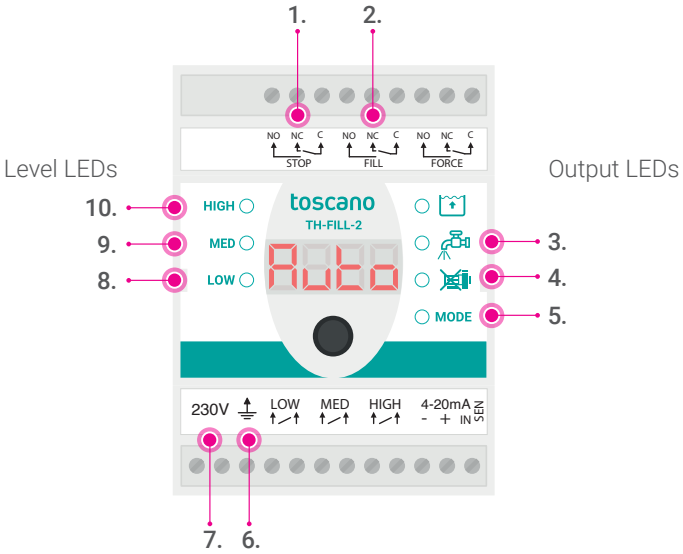
To measure the level, two small probes or a float inside one of the skimmers are used. Detection delays are adjustable to prevent interference from waves.





Float option

Equipment configuration for Skimmer-Pool systems



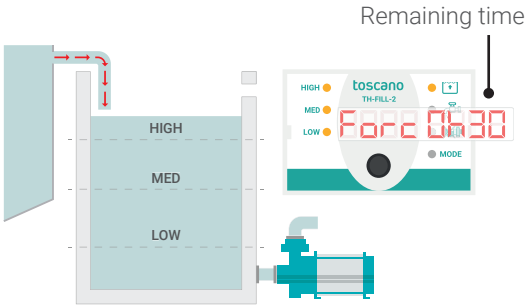
Control module parts

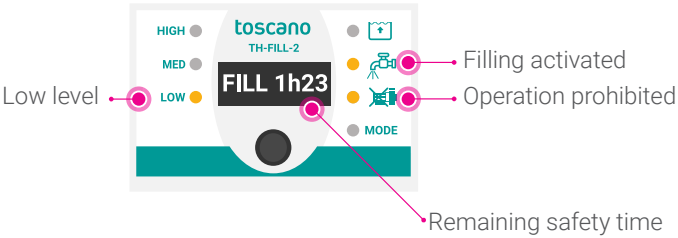
1. Pump stop relay
2. Filling relay
3. Filling activated
4. Pump operation prohibited
5. Operating mode
6. Probe connection
7. Power supply
8. Low level
9. Level measurement probe
10. High level

1.2. GENERAL FUNCTIONS OF THE EQUIPMENT

Filling activation

When the probes remain out of the water for a certain period (adjustable), filling is activated and pump operation is prohibited.





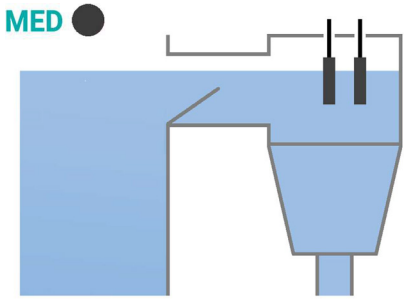
Safety stop

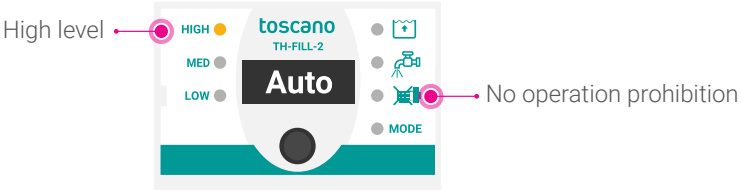
If the level is not restored within 2 hours (adjustable), the equipment stops filling and triggers a fault. Err - FiLL

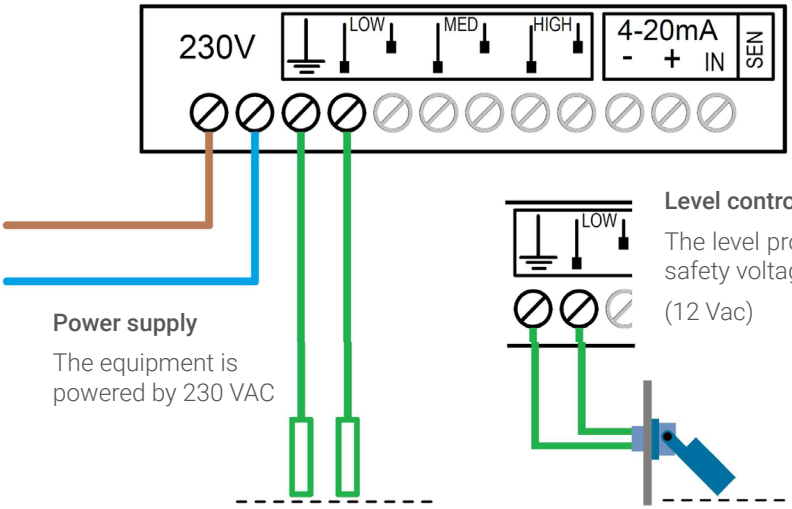
"The fault is cleared when the level is restored or by pressing the control.".

Filling deactivation

When the probes remain out of the water for a certain period (adjustable), filling is activated and pump operation is prohibited.







Power supply

The equipment is powered by 230 VAC

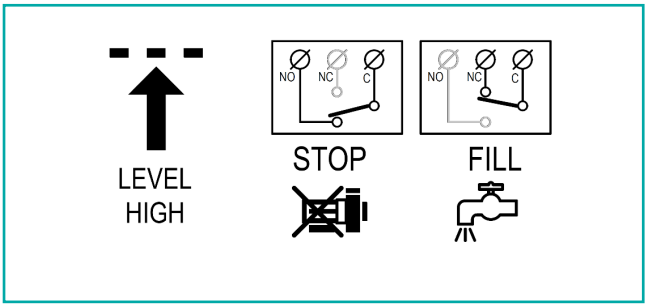
Level control connections

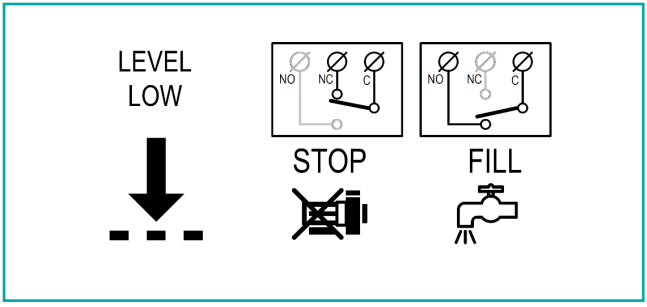
The level probes operate at low safety voltage.

(12 Vac)

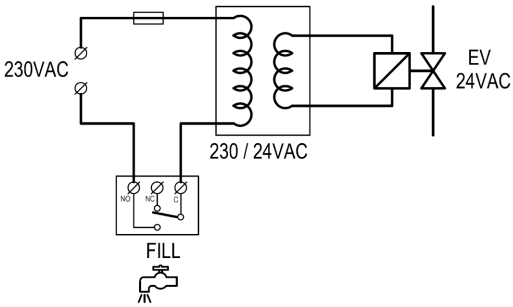
Relay outputs

The equipment uses two switched relay outputs.

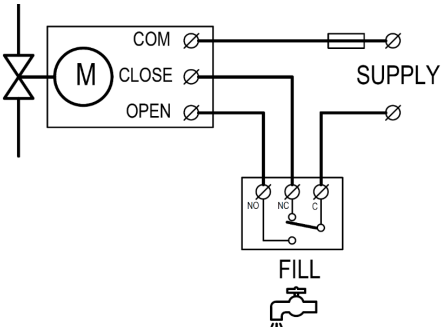




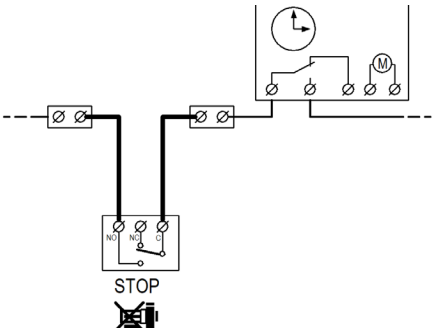
Wiring of a 24 VAC solenoid valve for filling.



Wiring of a motorized valve for filling.



Connection of the filtration stop relay (STOP).



On-screen display

FILL 1h34	* Filling activated and remaining time in hours and minutes.
Err FILL	Filling fault.
Auto	* Authorization for filtration pump operation.
StoP	* Filtration pump operation prohibited.

ADJUSTMENT AND CONFIGURATION

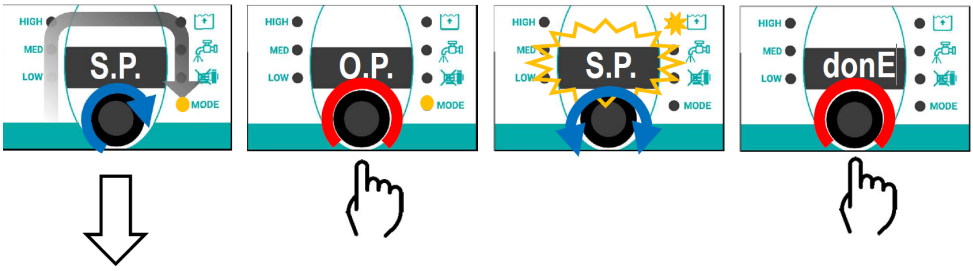
(MODE-Skimmer-Pool) Mode for pools with skimmer

Turn the control knob

If it is not in "S.P." mode, press

Select "S.P"

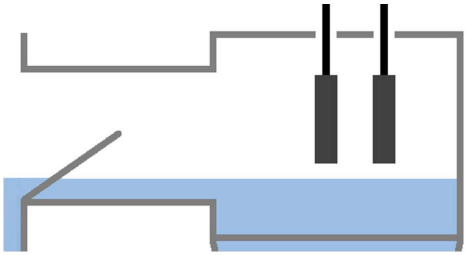
Press to confirm



Si ya está en Skimmer Pool (S.P.) do nothing and wait 10 seconds for it to return automatically to the main screen.

Detection delays for the skimmer level

Adjust the delay for low-level detection (LOW)



MED

Seconds the probes must remain out of the water to detect low level (LOW).

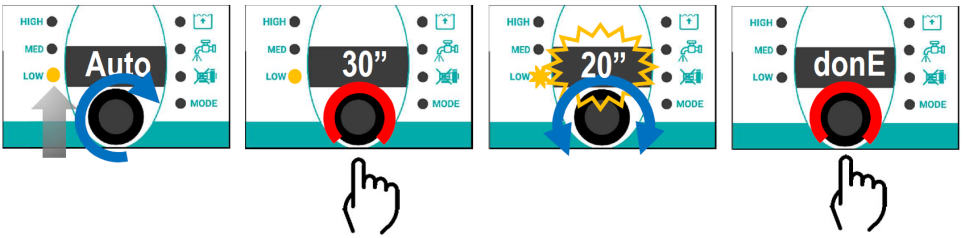
Adjustable from 5 to 300 seconds.

Turn the knob and select LOW

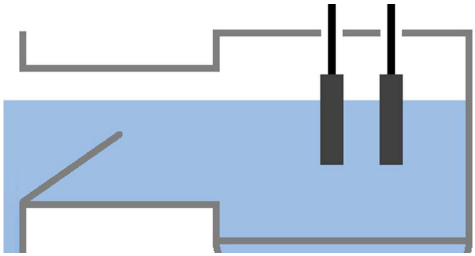
Press

Change the time

Press to confirm



Adjust the delay for high-level detection (HIGH)



MED

Seconds the probes must remain out of the water to detect high level (HIGH).

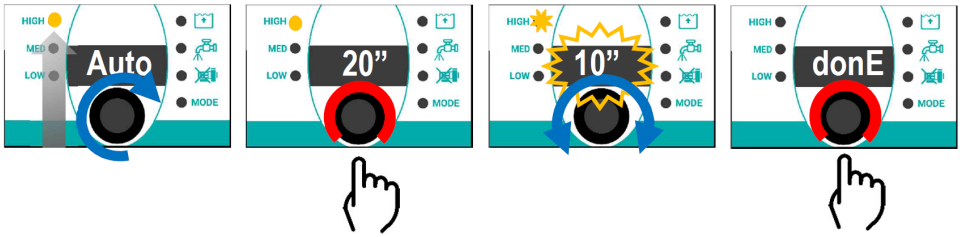
Adjustable from 5 to 300 seconds.

Turn the knob and select HIGH

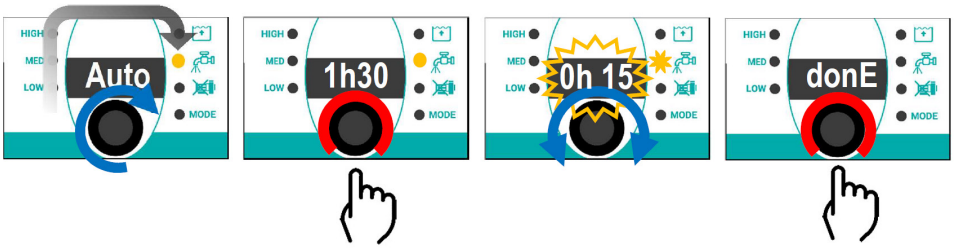
Press

Change the time

Press to confirm

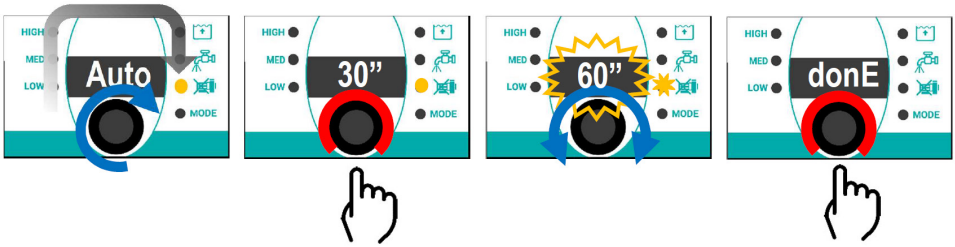


Adjustment of the maximum safety time for filling



oFF	Filling will never be activated (disabled).
30' 3' 0h 15 4h00 5h 25h	After this safety time, filling stops and a filling fault is triggered.

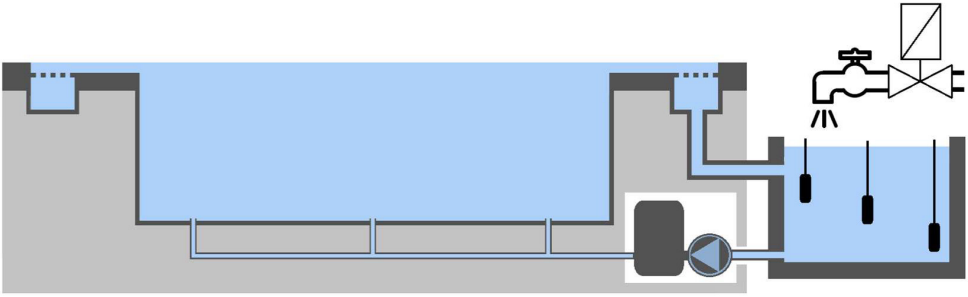
Adjustment of the pump restart time



5" ..... 180"	When the level is restored, the pump will wait this number of seconds before removing the operation prohibition.

Application for overflow pools (Overflow Pool)

5.1 EQUIPMENT DESCRIPTION

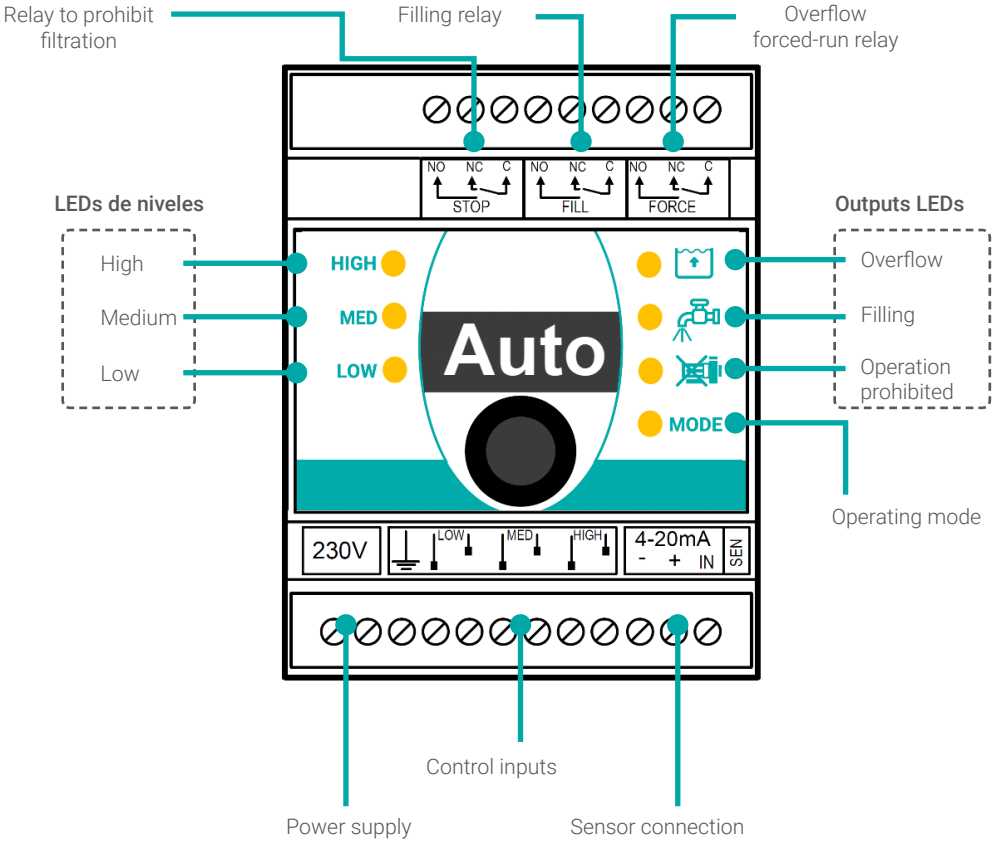


4 Functions:

- Forces the pump to operate if the level is too high.
- Activates automatic filling if the level is low.
- Prohibits pump operation if the level is too low.
- Limits the filling time in case of a fault.

To control the level, we can use:

- Probes (3,5 ó 7)
- 3 floats
- Ultrasonic sensor 4-20mA


Relay to prohibit filtration
Filling relay
Overflow forced-run relay
NO NC C
STOP
NO NC C
FILL
NO NC C
FORCE
LEDs de niveles
High
Medium
Low
HIGH
MED
LOW
Auto
MODE
Outputs LEDs
Overflow
Filling
Operation prohibited
Operating mode
230V
LOW
MED
HIGH
4-20mA
- + IN
SEN
Control inputs
Power supply
Sensor connection

5.2. GENERAL FUNCTION OF THE EQUIPMENT

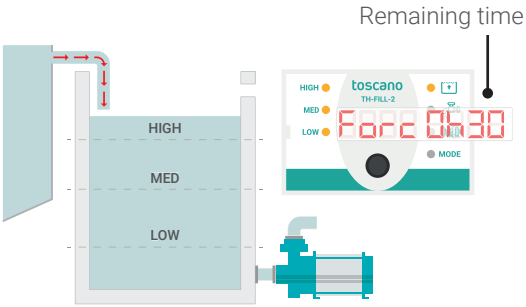
Overflow

Level above **HIGH**.

- Forces the pump for up to 30 minutes (adjustable).

- After this time, an overflow fault due to rain is triggered. Err - rA in.

> **The fault is cleared when the level is restored or by pressing the control.**

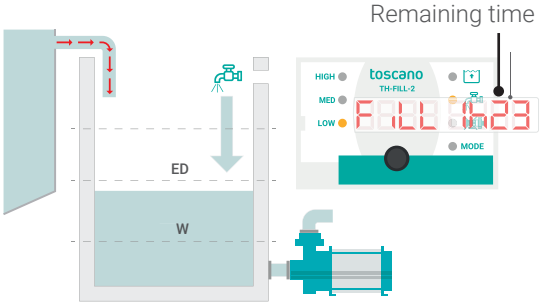


Tank filling

Level below **MED**.

- If the level is not restored within 2 hours (adjustable), the equipment stops filling and triggers a fault. Err - FILL

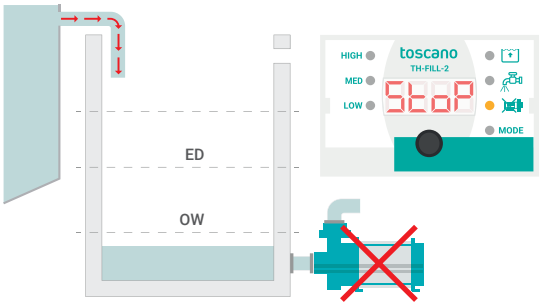
> **The fault is cleared when the level is restored or by pressing the control.**



Operanting prohibited

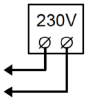
Level below **LOW**.

-When the level is restored, the equipment will wait 60 seconds (adjustable) before removing the prohibition.



6. WIRING

The equipment is powered by **230 V/**

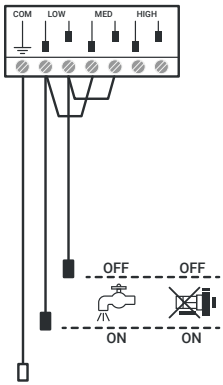


⚠ **The lower reference probe should always be placed at the bottom of the tank.**

6.1. CONNECTION OF 3 PROBES

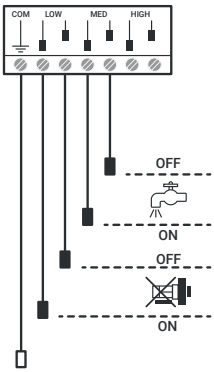
Filling and operation prohibition act simultaneously.

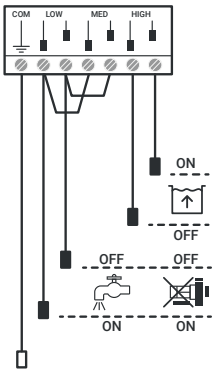
No forced operation due to overflow.

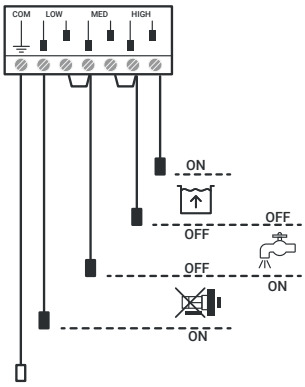


6.2. CONNECTION OF 5 PROBES

There are three possible connection methods.

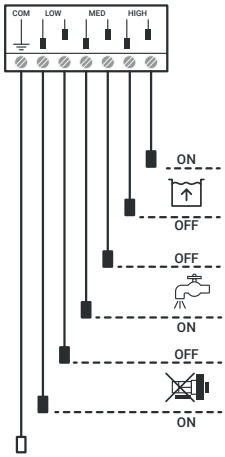






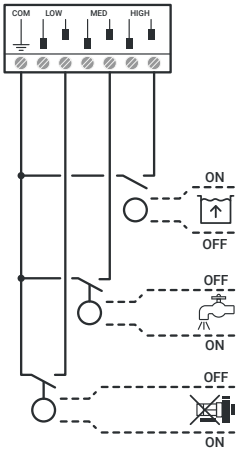
6.3. CONNECTION OF 7 PROBES

Each functio operated independently.



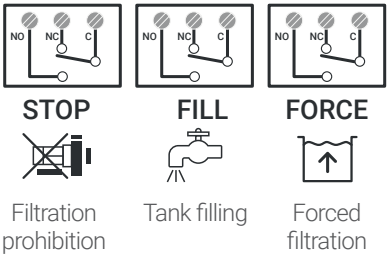
6.4. CONNECTION OF 3 FLOATS

Each function is controlled by a pump.



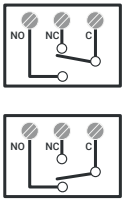
6.5. RELAY OUTPUTS

The equipment has three switched relay outputs.

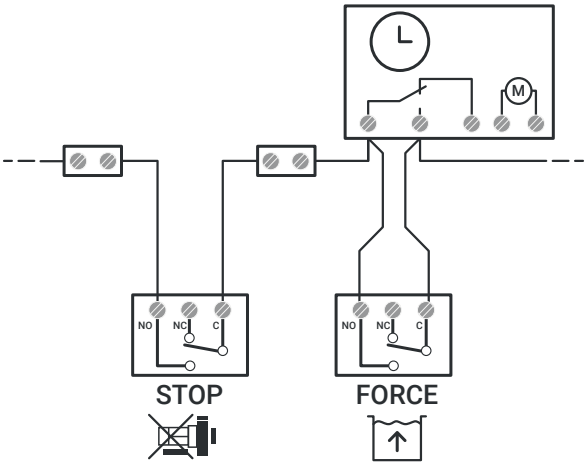


Output **deactivated** C - NC

Output **activated** C - NO

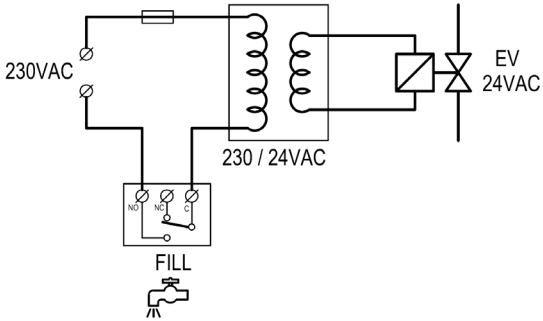


- **Connection of the filtration stop (STOP) and forced (FORCE) relays.**

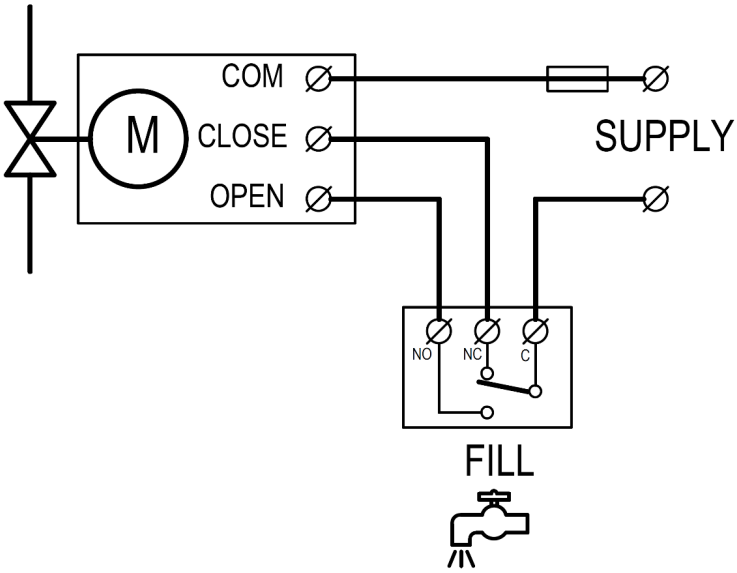


- **Connection of the filling relay (FILL).**

Wiring of a 24 VAC solenoid valve



Wiring of a motorized valve.



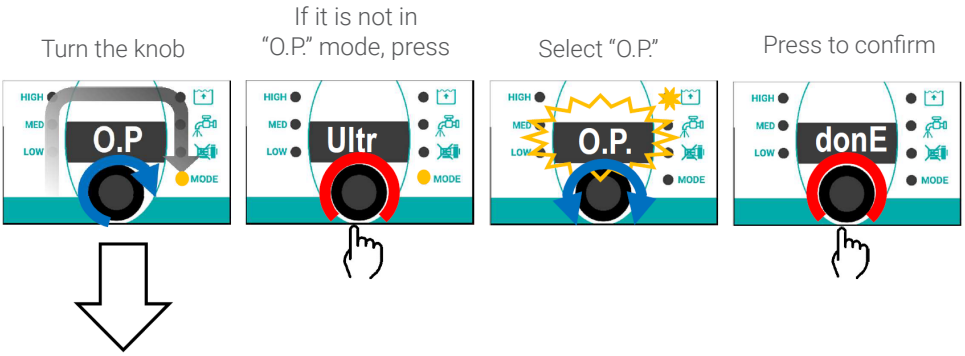
7. OPERATION

7.1. ON-SCREEN DISPLAY

Forc.0h23	* Pump forced operation and remaining time in hours and minutes.
Err rA in	Overflow fault due to rain.
F iLL 1h34	* Filling activated and remaining time in hours and minutes..
Err F iLL	Filling fault.
Auto	* Filtration pump operation authorized.
StoP	* Filtration pump operation prohibited.

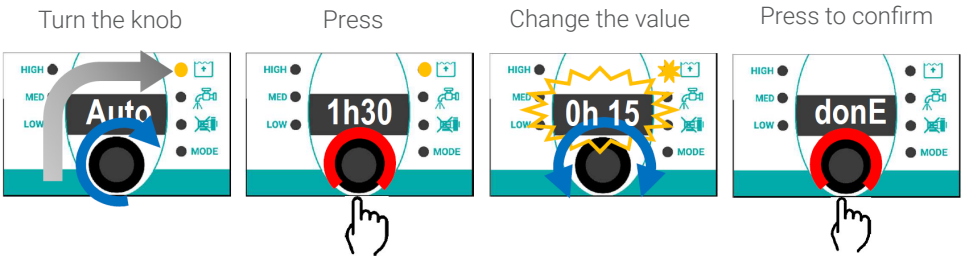
8. ADJUSTMENT AND CONFIGURATION

(MODE-Overflow Pool) Overflow pool. Level control by probes/floats



If it is already in Overflow Pool mode (O.P), don't do nothing and **wait 10 seconds** for it to return automatically to the main screen.

Timer settings



Rain detection time in overflow

oFF	Forced operation never stops.
dh 15…4h00	Hours and minutes before stopping due to rain fault.

Maximum filling duration

oFF	Filling is never activated
30" / 3' / 0h 15 / 4h00 / 5h…25h	After this time, it will stop due to a filling fault.

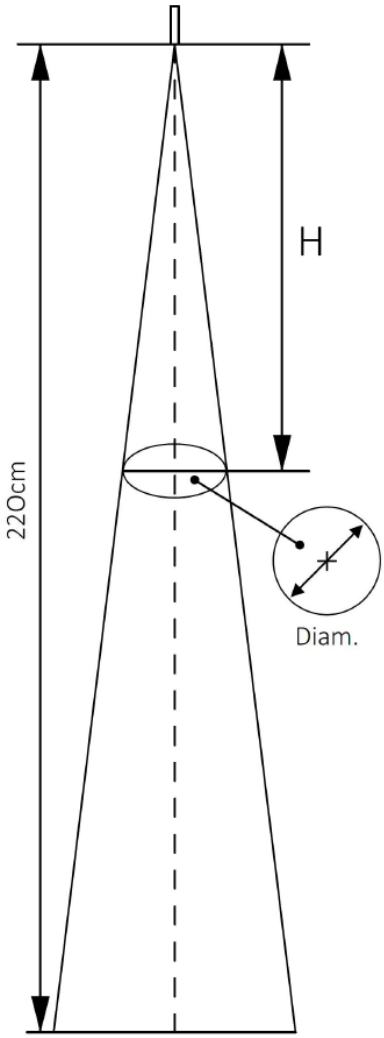
Waiting time after operation prohibition

5"… 180"	Seconds before removing the prohibition

Operating mode with ultrasonic sensor for level control in the compensation tank

Sensor opening diameter

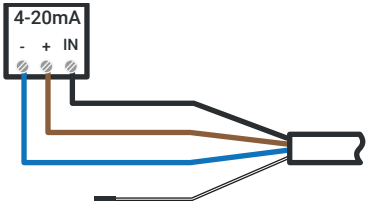
In the attached table, we can see the opening diameter (Diam) at a certain distance (H) from a **UA18CAD22PGTI** sensor



H (cm)	Diam (cm)
20	4,9
25	6,1
30	7,4
35	8,6
40	9,8
45	11,1
50	12,3
55	13,5
60	14,7
65	16,0
70	17,2
75	18,4
80	19,6
85	20,9
90	22,1
95	23,3
100	24,6
105	25,8
110	27,0
115	28,2
120	29,5
125	30,7
130	31,9
135	33,2
140	34,4
145	35,6
150	36,8
155	38,1
160	39,3
165	40,5
170	41,7
175	43,0
180	44,2
185	45,4
190	46,7
195	47,9
200	49,1
205	50,3
210	51,6
215	52,8
220	54,0

Ultrasonic sensor connection

Wiring of the ultrasonic sensor **UA18CAD22PGTI**

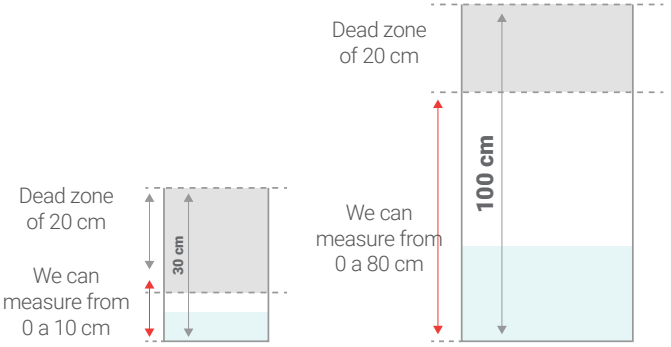


Operation of the ultrasonic sensor

On-screen display for ultrasonic sensor

Err rA in	Overflow fault due to rain.
F iLL 1h34	* Filling activated and remaining time in hours and minutes..
26	Level in centimeters.
- -	Sensor reading out of range.
Err. - Sc	(Error Short Circuit) **Short-circuit fault.** Sensor current exceeds 21 mA.
Err. - Oc	(Error Open Circuit) **Open-circuit fault** Sensor current is below 2 mA.

⚠ In front of the sensor, there is a 20 cm Dead Zone where “measurement is not possible.”



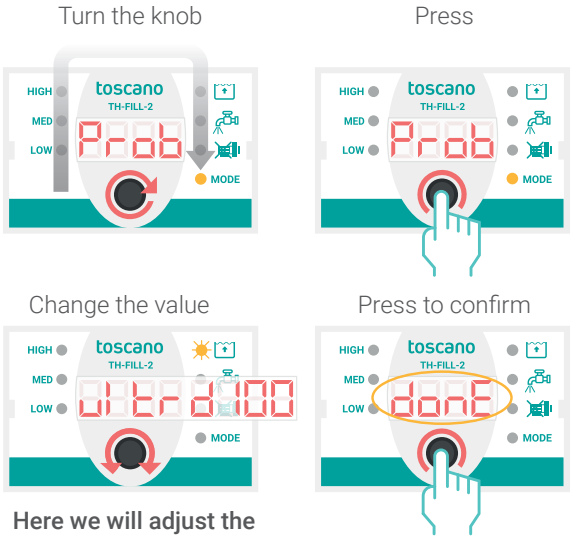
Installation 30 cm from the bottom

We will select uLtr-d30

Installation 100 cm from the bottom

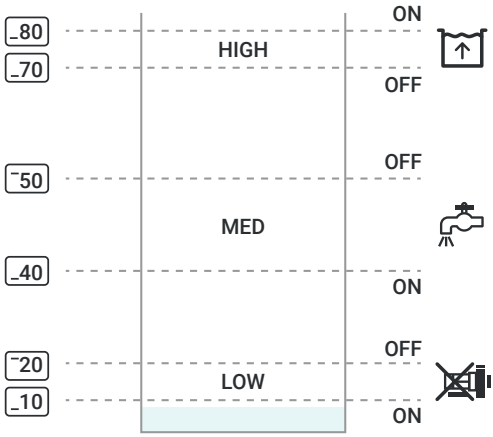
We will select uLtr-d100

Adjustment of the sensor distance to the bottom



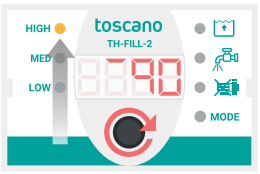
Here we will adjust the distance to the bottom

Six levels mut be adjusted on the three left indicators, for example:

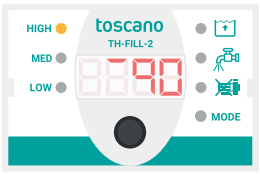


Levels check

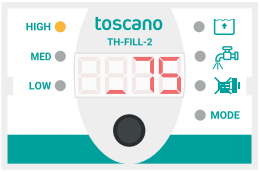
Turn the knob and select the level to check



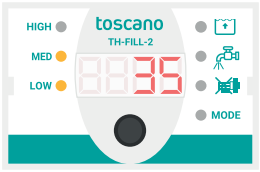
The upper value (high dash) is displayed



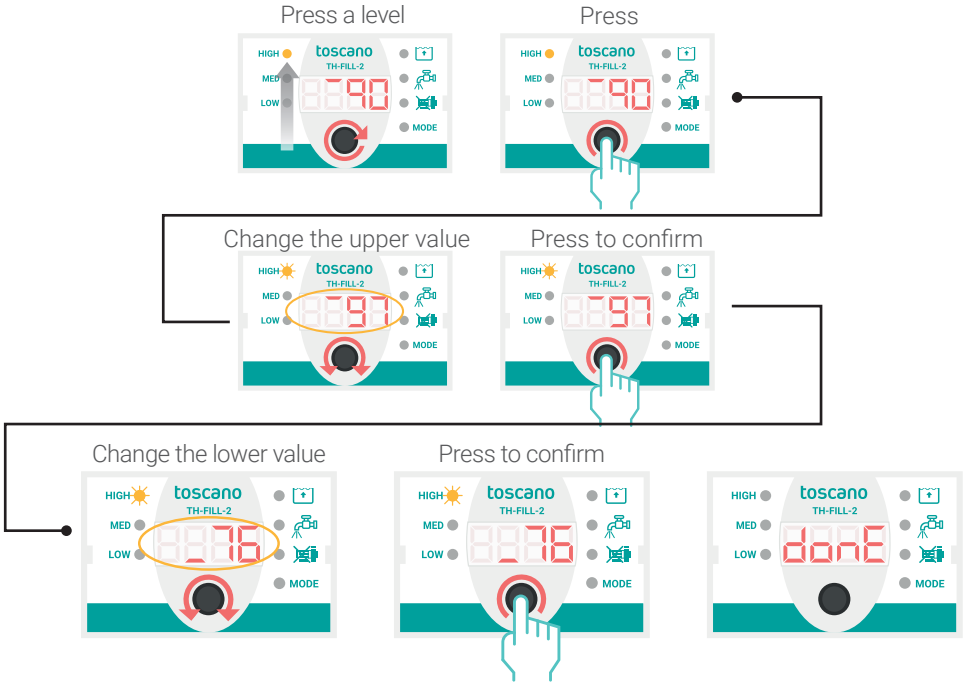
The lower value (low dash) is displayed



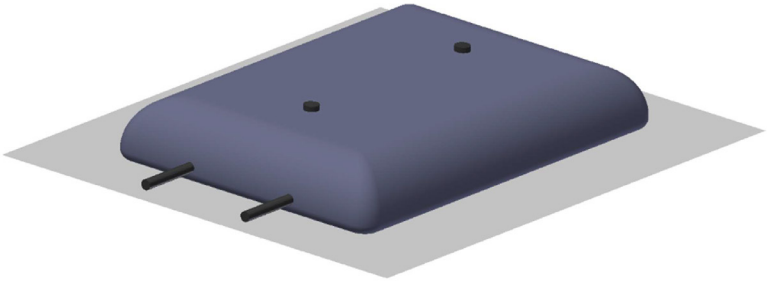
After 10 seconds, it return to indicate the current level



Modify levels



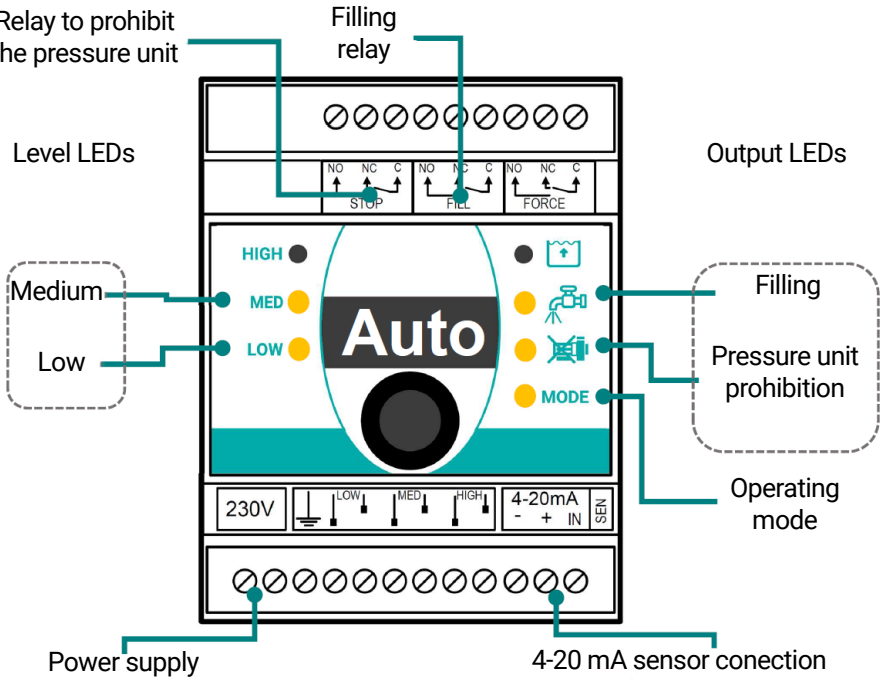
11.1. EQUIPMENT DESCRIPTION



11.2. FUNCTIONS

- Activates or deactivates filling if the level is low
- Prohibits operation of the pressure unit if the level is too low.

To conrol the level, a 4–20 mA probe with a range of 2 or 5 meters will be used.



11.3. GENERAL FUNCTIONS OF THE EQUIPMENT

Tank filling

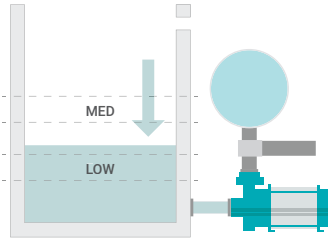
- If the level drops below (MED_), filling is activated.

- The screen displays the message FILL Filling stops when the level rises above (MED ---).

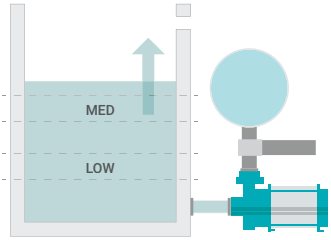
- If the maximum filling time setting is oFF filling has no time limit. The maximum filling time can be set from 30 s to 25 h.

- If the time limit is exceeded, a fault appears. Err-FILL

The fault is cleared when the level is restored or by pressing the knob.



Start of filling



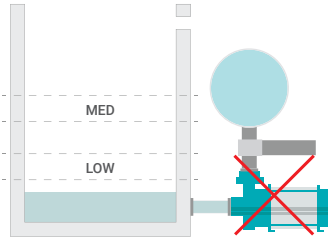
End of filling

Operation prohibition

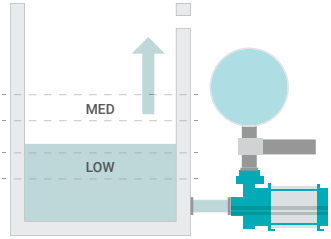
- If the level drops below (LOW_), operation of the pressure unit is prohibited.

- The screen displays the message StoP

- When the level rises above (LOW---), operation will be allowed again after an adjustable safety time of 5 s to 180 s.

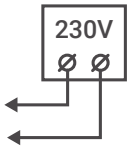


Operation prohibition

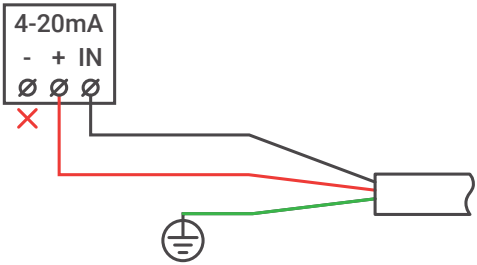


Operation permission

- **Power supply:** the equipment is powered at 230 VAC



- **Equipment sensor wiring:**



We will use a continuous 4–20 mA piezoelectric level probe with a range of 2 or 5 meters. The device will indicate the height from 0 to 200 cm or 0 to 500 cm. The probe will be connected as follows:

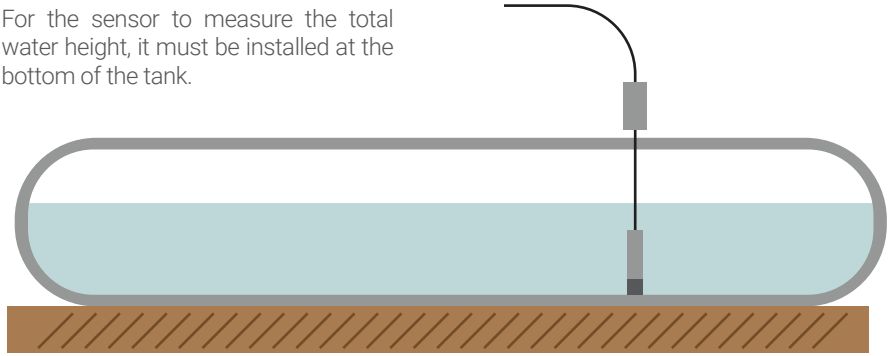
Power wire. . . . . Terminal **(+)** of TH-FIII-2

Signal wire . . . . . Terminal **(IN)** of TH-FIII-2

Ground wire ⏚ . . . . . Ground terminal ⏚ in TH-FIII-2

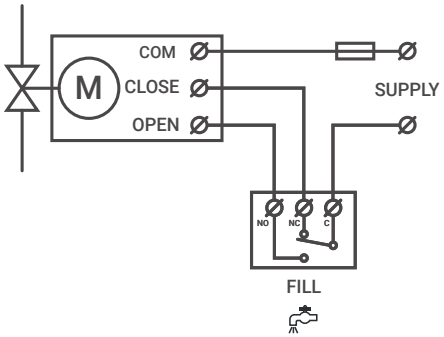
- **Sensor installation in the tank**

For the sensor to measure the total water height, it must be installed at the bottom of the tank.

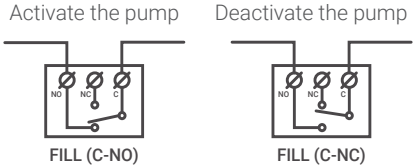


12.1. FILLING RELAY

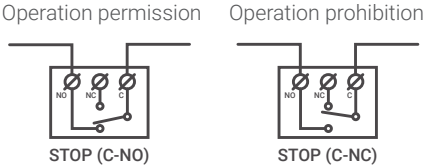
- **Filling with motorized valve**



- **Filling with well pump**



- **Pressure unit operation prohibition relay**



13.1. ON-SCREEN DISPLAY

	Filling activated.
 Err FiLL	Filling fault.
 Auto	Authorization for operation of the filtration pump.
 StoP	Filtration pump operation prohibition.

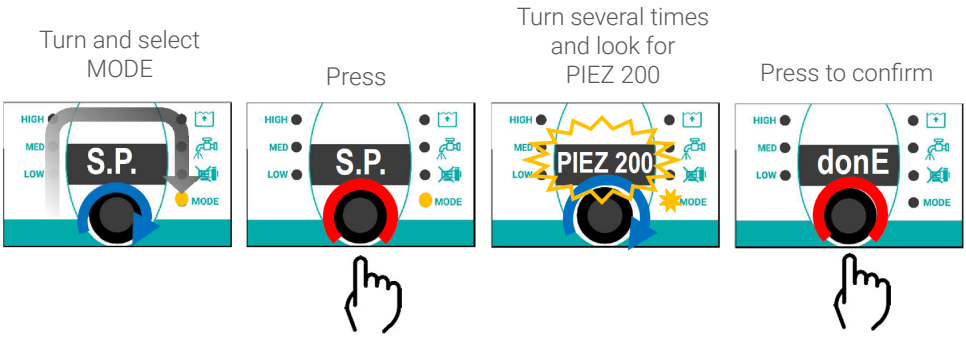
Only if a sensor is used

26	Level in centimeters.
- -	Sensor reading out of range.
Err.-Sc	(Error Short Circuit) **Short-circuit fault.** Sensor current exceeds 21 mA.
Err.-Oc	(Error Open Circuit) **Open-circuit fault.** Sensor current is below 2 mA.

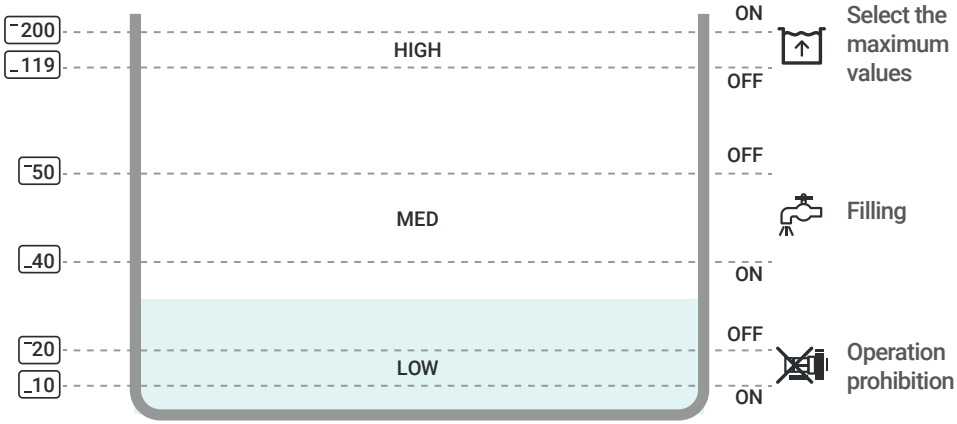
We will select the Operating Mode (MODE) for the piezoelectric probe.

P.E2 200	Level control with 4–20 mA piezoelectric probe and 2 meter range.
P.E2 500	Level control with 4–20 mA piezoelectric probe and 5 meter range.

Of the two options, we will choose the probe with a 2-meter range.

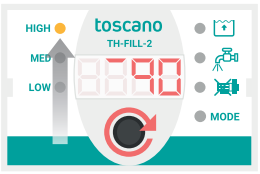


Each function has two levels, an upper ¯**XX** and a lower _**XX** , one will be for activation and the other for deactivation.

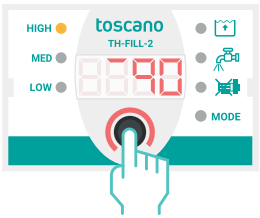


Modify levels

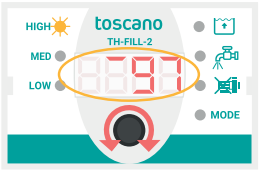
Select a level



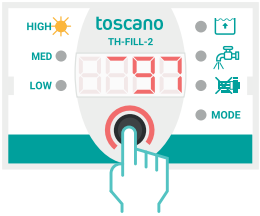
Press



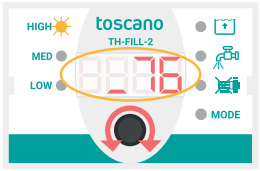
Change the upper value



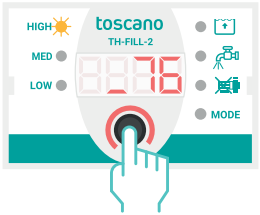
Press to confirm



Change the lower value



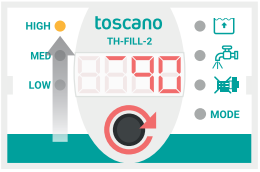
Press to confirm



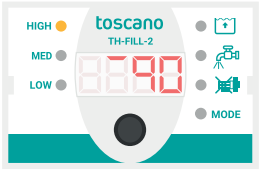


Level display

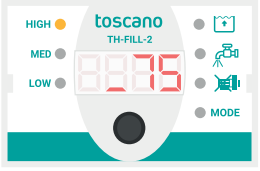
Turn the knob and select the level to display



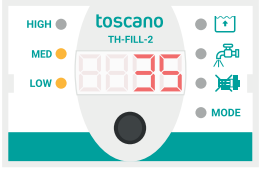
The upper value is displayed (high dash)



The lower value is displayed (low dash)

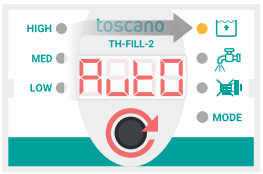


After 10 seconds, it returns to display the current level

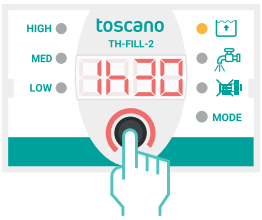


Activation time settings

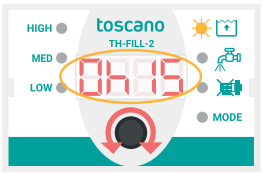
Turn the knob



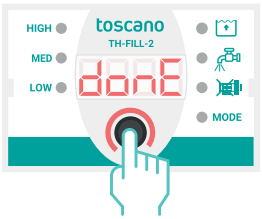
Press



Change the value



Press to confirm



After 10 seconds, the device automatically returns to the main screen.

Overflow detection time setting

oFF	The “off” position will be selected. (CANCELLED)

Maximum filling duration

oFF	Filling is never activated.
30" / 3' / 0h 15 / 4h00 / 5h…25h	After this time, it will stop due to a filling fault.

Waiting time after operation prohibition

5"… 180"	Seconds before clearing the prohibition

15. SPECIFICATIONS

Power supply voltage	230 VAC+/- 10% 50/60 Hz
Power consumption	4 W max.
Voltage on probes / floats	12 VAC
Ultrasonic sensor supply voltage	12 VDC
Switched output relays	Operation prohibition, filling, and forced operation
Indicators	High level, medium level, low level, and outputs
Maximum load on output relays	300 W
Delay setting for filling probe/float	5 sec. to 300 sec.
Overflow time limit setting	OFF - 15 min. a 4 h
Filling time limit setting	OFF - 30 sec. a 35 h
Pump authorization timer setting	5 sec. a 180 sec.
Level control modes	2, 3, 5 and 7 probes, 1 or 3 floats, ultrasonic sensor or piezoelectric sensor 2 or 5 meters

NOTES

toscano

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