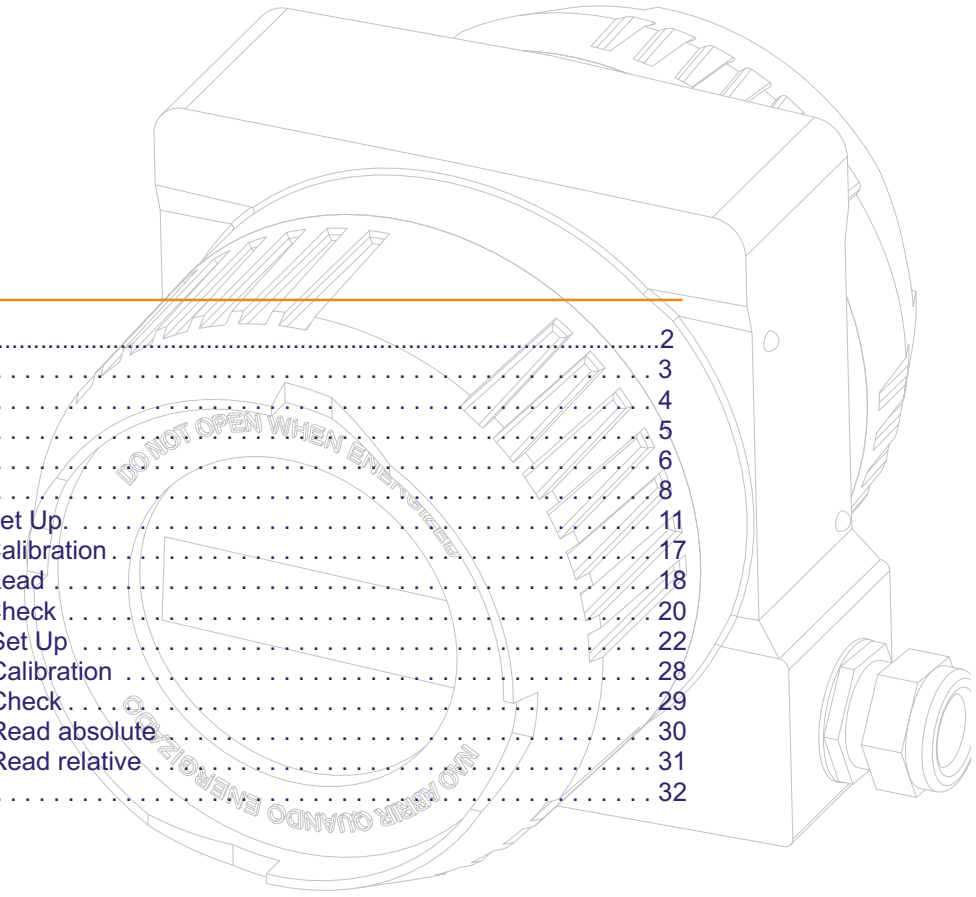
Digimed

# Instruction Manual

## PH Analyzer

## TH-401




## Index



SOFT. V5a
MAN. 078
REV. 02

# 1. Warranty Certificate

**Digimed** garanties the first owner of this product, **36 meses** of warranty against menufacturing deffects and **6 months** fro electrodes from the delivery date, with sales receipt or from the manufacturing date code (or as identified) through the serial number.

**Digimed** consideres this warranty voided, in case the instrument suffers any type of damage from any type of accident, abusive use, or use in disregard of the instruction manual, or if used with an electrical current other than that specified for this product or is subject to excessive fluctuation on the electric current or if in case of evidence of tampering or repair by a non- authorized person or delaer.

This product is manufactured under the **" DIGIMED QUALITY AND ASSURANCE SYSTEM"**, according **ISO9001:2000**.

This warranty does not cover any shipping and handling charges.

## Certificate of Conformance

We certify and declare under our responsability that this equipment, is within conformance with the specificactions proposed during its project and application.

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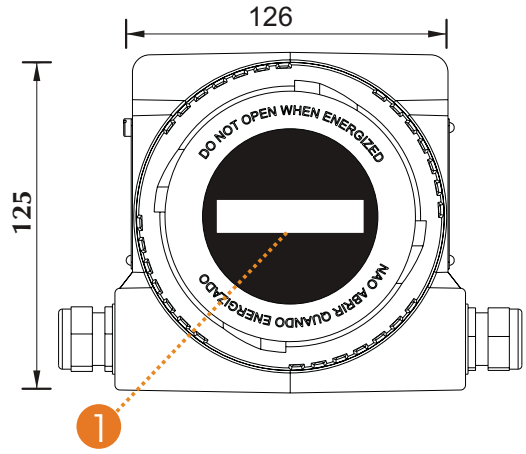
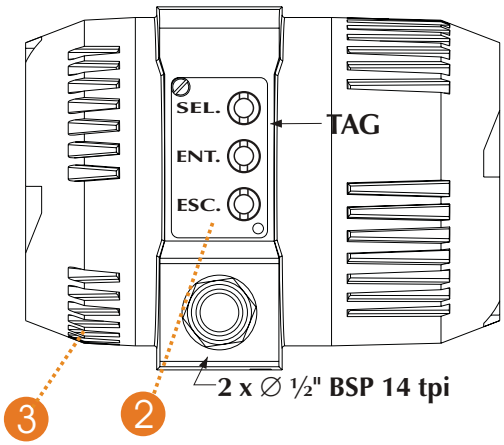
# 2. Specifications

| Application | Analyzer / Transmitter / Controller pH, ORP Micro processed |
|---|---|
| **GENERAL** | |
| **Case Material** | Cast Alluminum – SAE 323 |
| **Finishing** | Electrostatic Epoxy Paint |
| **Electrical Connection** | Terminal Bars |
| **Cable Inlet** | 2 Cable Knockouts ½" |
| **Assembly** | 2" Tube or Flat Surface |
| **Identification (TAG)** | SS 316 Tag |
| **Protection** | IP-68 |
| **Power Consumption** | 3.5 VA |
| **Weight** | 1.9 Kg |
| **Electrical Power** | 90 to 240 VAC – (50/60 Hz) |
| **Working Temperature** | 5 to 40ºC |
| **Relative Humidity** | 20 to 80% |
| **ANALYZER/TRANSMITTER** | |
| **Display** | Alphanumeric Backlight<br>2 lines x 16 characters |
| **Range, pH** | -20 to 20 pH |
| **Resolution** | 0.1 / 0.001 pH |
| **Relative Precision** | 0.07% (full scale) |
| **Range, mV** | +-1999 |
| **Resolution** | 0.1/1 mV |
| **Relative Precision** | 0.07% (full scale) |
| **Range, Temperature** | 0 to 100ºC |
| **Automatic Temperature Compensation** | 0 to 100ºC |
| **Analogic Signal Ouput** | 4 to 20 mA with output programmable Range |
| **Digital Signal Output** | RS-485 with bilateral interaction thru software up to 36 equipments at 2km apart |
| **Galvanic Isolation** | 2000 VAC (by optocoupler) |
| **Line Resistance** | 1K3 Ohms |
| **CONTROLLER** | |
| **Analogic Signal Output** | 2 x 4 to 20 mA, p+I +D |
| **Set-Points** | 2 independents from 0 to 100% of escale |
| **Contat Output** | 2 for control or alarme ON-OFF / PWM-NO (1A/250 VAC) |
| **Automatic Cleaning Control (Timer)** | ON-OFF for periods up to 99 seconds, in intervals up to 99h. |
| **ACCESSÓRIES** | |
| **Installation Hardware** | |
| **Instruction Manual** | |
| **SS clamp "U"** | |
| **Connection Connectors** | |
| **OPTIONAL ACCESSÓRIES** | |
| **Automation Software** | |

# 3. Mechanical Description

The equipmento is supplied in a compact case manufactured in cast alluminum. **SAE-323** with low oxidation grade, with anti-corrosion treatment and finished with electrostaric epoxy paint. Reduced dimensions and very light weight, it is build under IP-68.
User will find under the same case - the local indicator, Analyzer, Controller and the Register, making the equipment compact and easy to operate.
The case installation can be done in 2“ tube or Flat Surface.
Electrical connection is done thru a teminal block located in the back of the instrument housing case (3), with cable inlet thru 2x cable knockout ½” BSP.
The identification **(TAG)**, in =SS 316, is located on the side of the equipment, that covers the external controls, sealed in order to retain IP ratings.



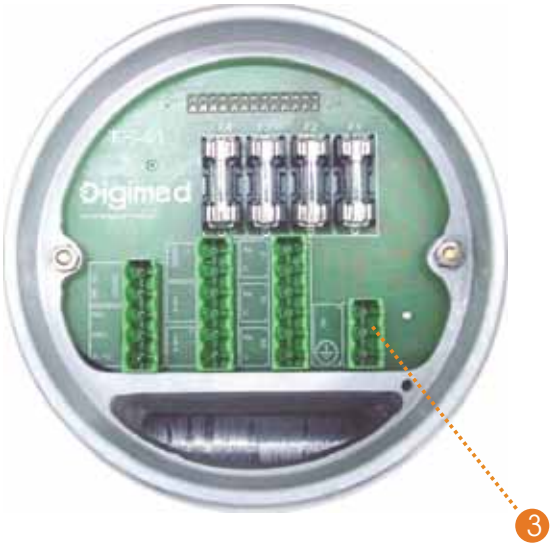

## Items Description

1 - Display: Alphanumeric 2 Lines x 16 characters

2 - Keyboard: with 3 keys

| | |
|---|---|
| **<SEL>** Key | Selects the desired option, flashing option |
| **<ENT>** Key | Confims the selection chosen by Select Key |
| **<ESC>** Key | Press Escape key in order to go bak to previous page or hold to quit Reading Mode |

3 - Back lid remove it in order to access the terminal bar for connection (in the back of the unit)

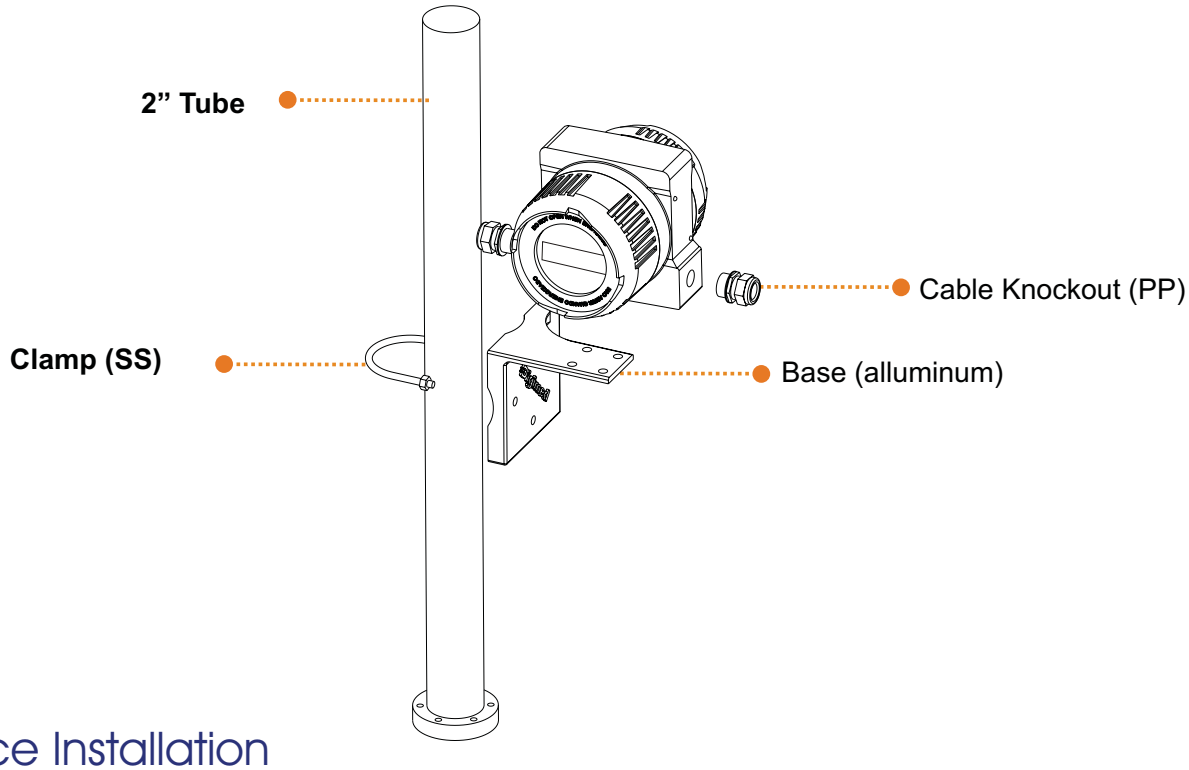



| SLOTS | CONNECTIONS |
|---|---|
| 1 | Shield |
| 2 | Measure Electrode (MED) |
| 3 | Reference Electrode (REF) |
| 4 & 5 | Thermo compensator |
| 6 & 7 | Transmission Output mA-1 |
| 8 & 9 | Transmission Output mA-2 |
| 10 & 11 | Digital Transmission Output RS-485 |
| 12 & 13 | Set Point Contact 3 (S3) |
| 14 & 15 | Set Point Contact 3 (S2) |
| 16 & 17 | Set Point Contact 3 (S1) |
| 18 | Grounding |
| 19 & 20 | Electrical Power 90 thru 240VAC – 50/60 Hz (Bi-volt) |

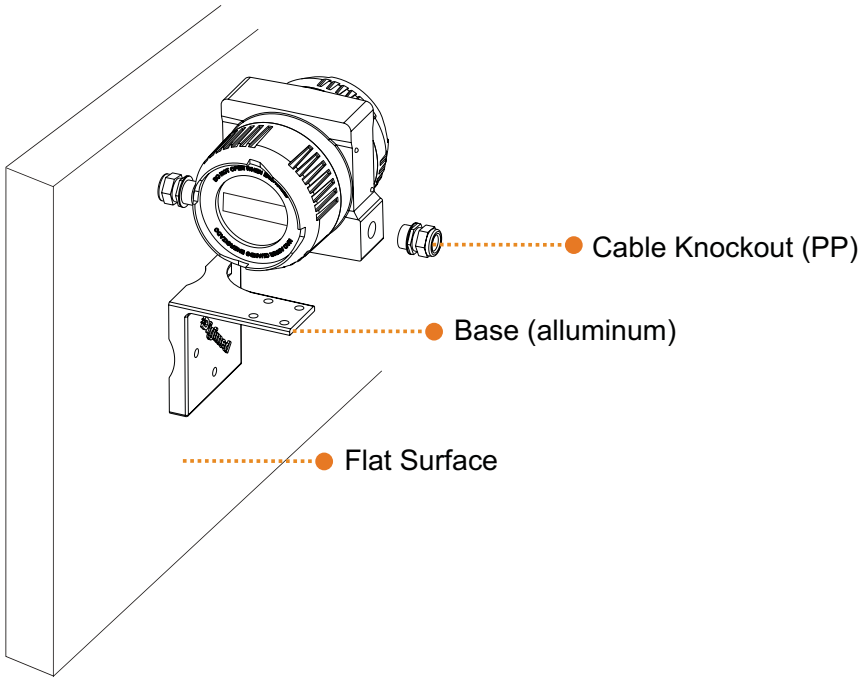
| SLOTS | CONNECTIONS |
|---|---|
| F1 | General Fuse (3A) |
| F2 | Set-Point 1 Fuse(1A) |
| F3 | Set Point 2 Fuse (1A) |
| F4 | Set-Point 3 Fuse (1A) |

# 4. Typical Installation

## 2" Tube Installation




## Flat Surface Installation




**Important Note:**
Install the equipment in a strategic location allowing easy access and maintenance and avoid exposing it directly to solar rays, besides equipment overheating causing eventual damage, the Liquid Crystal Display will also loose tis sensibility, fading the display.

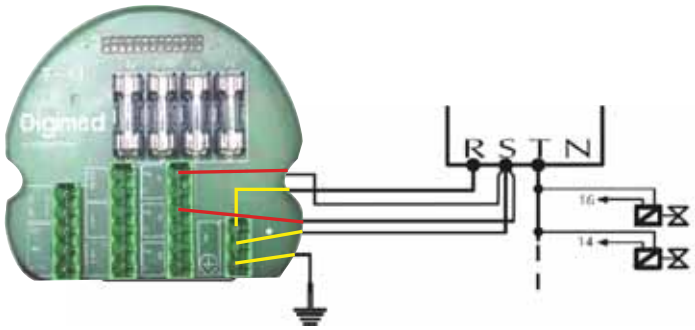
# 5. Equipment Installation

In order to achieve the best performance of DIGIMED continuous analyzer, it is crucial to perform the correct installation. Follow below instructions:

- Remove the instrument from its box and inspect it for any possible damage, caused by the transportation.
- Install the case in strategic location, for ease access and maintenance, exempt of vibrations and vapors.
- Avoid exposing the equipment direct to solar rays. If necessary use some kind of protection.
- After connecting the cables with its respective terminals, proceed with terminal block connection, locate in the back panel of the case.
- Inspect all electrical installation in order to certify that all connections are correct.

## Important Recommendations

The equipment electrical power must be independent from other components system. Being so, the cable that will power the Control Valve, Solenoid, Alarms, etc, must be connected directly to the distribution box, and never to the equipment slots.




**2 - Verify** for any gaps between the probes cable and the cable knockout. If noticed any, wrap the cable using **"high fusion"** tape until the gap disappear and a perfect contact between the cable and the knockout is reached.
This procedure is necessary in order to preserve the case protection (IP-68).

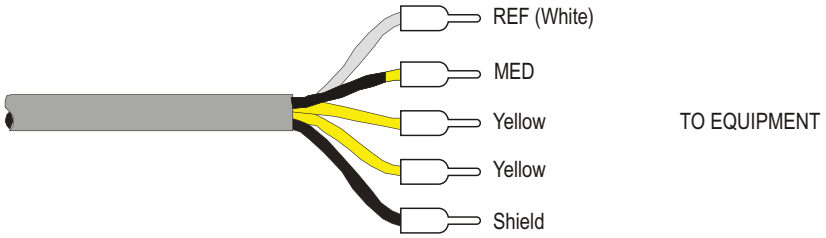
**3 - Be Carefull with Humidity!!** It will diminish the impedance generating measurement errors. Verify the terminal block and if necessary, dry the area using a hair dryer .

**4 -Replace** periodically the sealing O-Rings in order to guarantee a good sealing of the case.

**5 - Do not** cut or mend the probe cable. Under the cable shield there is a semiconductor material covering, to eliminate the electrostatic interference of the cable.

# 5. Equipment Installation (cont.)

## Cable Connections




ON-OFFoutputs are thyristor type, offering innumerous advantages for the equipment, such as: no sparks presence, faster communication, noise practically inexistence, no RF interference presence and many more. The outputs can commu tate any charge, since they are powered by an **alternate current (AC).**

## Importante Notes in order to program the control function

During the connection and the control programming, pay atttention the the following notes:
1. For the connection between the controller and the element being controlled, use the modulated output 4-20 m, choose preferencially slots 5 and 6;
2. In order to activated ouptus 5 and 6, configure Split-Range function;
3. The control and Split-Range configurations must be identical, except for Acting (Direct / Reverse);
4. The P.B. (Proporcional Band), Rate and Reset (PID), must be initially configured, based in typical field experiences, in order to initiate the process control tune;
5. Criteria to be observed, in order to obtain the correct tuning, must be:
A) Stablish initial arbitrary values, based on previous knowledge process answer;
B) Evaluate the control and process answers, like time function, allowing enough time for the process to become stable or unstable.
The stability, can present certain characteristics,such as, insufficient correction time such as instability, taking the process to a limit situation.
C) Above situations, express the control sensibilty, unstable process, taking it to limit situations and control actions (P.B., Rate and Reset), with values above the standard, such as un-sufficient correction, expressing control actions with values below the standard.

# 6. Equipment Operation

## Set Up Procedures

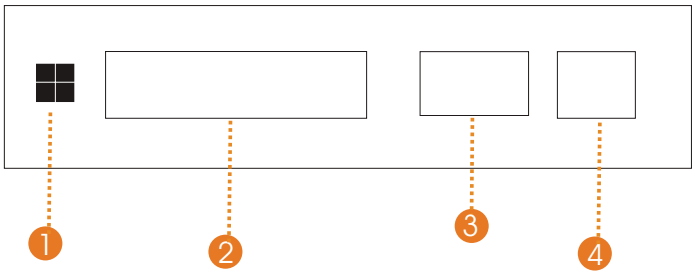
The equipment offers a non-volatil memory (**E2PROM**), in order to store operations functions (resolution, reading, Calibration and more). Even when turned off from power, all functions chosen during set up will remain stored.
Before starting any work with the equipment, it is recommended to **verify the SET UP parameters,** to certify that you have chosen the correct options for the operation .
When at the **SELECT FUNCTION** menu, press **<SEL>** key in order to select the desired function, flashing option, then press **<ENT>** key. In order to access the **SET UP**, press **<SEL>** key until SET function flashes, then press **<ENT>** key to confirm the option chosen. A Password will be requested, press in sequence **<SEL>**, **<ENT>**, **<ESC>** then follow step by step the options shown at the screen. In case the user desires to change the flashing option, press **<SEL>** key until the desired option flashes then press **<ENT>** key to confirm the option.
In order to move to the next screen, user must press **<ENT>** key .

## Check Operation

The option Sensor Check is very useful, as it allows the user to verify the sensors condition. This option is self explanatory, just press **<SEL>** key until Check option flashes, then press **<ENT>** key to confirm it. Then follow the display instructions as it is self explanatory.

## Read Operation

At this operation user will have options to **CALIBRATE** and **READ**. In case the desire is to **CALIBRATE** the Sensor, press **<SEL>** key until **Cal** option flashes, then press **<ENT>** key to confirm the option chosen. From this point on the program will guide the user step by step on how to proceed with the perfect calibration. In case the desire is to Read, press **<SEL>** key until option **Read** flashes, then press **<ENT>** key to confirm, then the display show the following form:

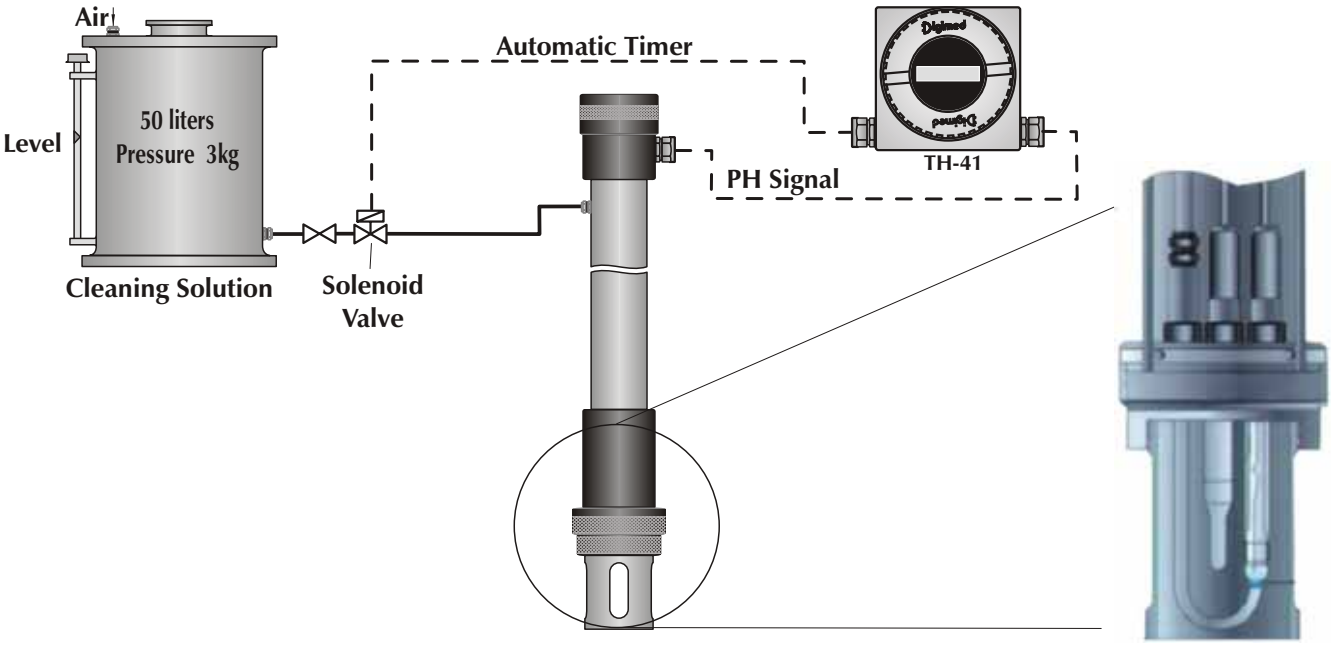



1- The "**Prompt**" is a signal that flashes every time a reading is performed, depending upon the time between readings, chosen during Set Up Operation. Do not forget that during "SET" option a time between readings was set.
2- The measured value
3- The Unit (ph or mV)
4- The Reference Temperature

# 6. Equipment Operation (cont.)

## Automatic Cleaning (optional)

The pH controller offers the possibility of automatic cleaning for the probe.
During **Set Up**, user can program the duration time of a cleaning and also the intervals between cleaning. At slots 11and 12, there is a dry contact thyristor that commands the solenoid valve of the cleaning system. The outputs and the display remain frozen during cleaning operation.




## Importante Information

1- While at **Reading**, user can obtain other information: by pressing **<SEL>** key, it is possible to obtain Temperature or Set-Points values. Pressing **<ENT>** key, will place the equipment in **STAND BY** Mode. While in **STAND BY** the outputs will be turned off, that means, the output current will be altered to 4 mA and the contacts are NO (Normally Open). The outputs must be programmed by the user.
2- **<ESC>** key will only be recognized if pressed for a longer period of time (about 5 seconds), while at Reading Mode. This time is necessary in order for the equipment to certify that the user really wants to exit the Reading Mode.
3- In the event of a power failure, the equipment will retain initial set up as prior of being turned off, when the power returns, the outputs and the display will return to activities prior of being turned off.
4- Every time the temperature cell is replaced by a new one, it is necessary to match the thermo compensator value with the instrument. So during SET UP Operation when prompted with question “NEW THERMO?” choose YES, then confirm by choosing YES again, then dip the temperature cell into water @ 25°C and wait until finished. When the instrument is shipped from factory (in case a themo probe is ordered with it), the probe Had been already thermostatized and no further procedure is necessary!

# 6. Equipment Operation (cont.)

## Basic Operations

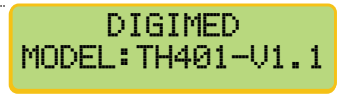
1 - The Software offers self-explanatory menus interacting with the user.The active menu is shown like and flashing option. Press **<SELECT>** keyin order to move around and pick the desired flasing option, then press **<ENTER>** Key to confirm it.

2 - In case of an error, to modify the data or to go back to a prior menu, press **<ESCAPE>** key.

3 -The equipment stores every configuration in a non-volatile memory ($E^2$PROM). Even when turned off, the last working conditions will be sustained.
4- This instrument works for Temperature compensation - NTC, PT100, PT1000, PT3000 and Manual. The instruments will automatically recognize if a Thremo compensator is attached or not and it will recognize the Thermo type!

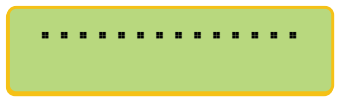
## Turning On the equipment

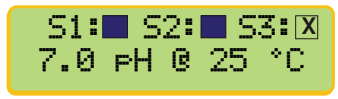
1 - Connect the instrument to power . It will go staight to reading Mode.Below screens will be displayed!




Performing Auto Check for memories, EPROM and E2PROM.


Performing the Display Check




(***)Press and Hold **<ESC>** if user desires to exist the Reading Mode and access the Main Menu. This action will not hault the Reading operation of the instrument, while the user performs another operation.
If the user desires to Hault the operation, first place the intrument in Stand By Mode by pressing **<ENT>** key, then press and hold **<ESC>** key to exit reading mode.

# 6.1 Equipment Operation - pH - Set Up

## SetUp

At the beginning of every operation, verify the Set Up conditions of the equipment and certify the parameters are correct for your application.

Press and hold **<ESC>** key in order to exit the Reading Mode and go to Select Menu. Choose **pH** option (flashing) then press **<ENT>** key. Refe to information on Page 10 (***).

Press **<SEL>** unitl **Set Up** flahses then press **<ENT>** key.

A Password is required in order to access the SET UP. Press in sequence **<SEL>**, **<ENT>** and **<ESC>** keys.

In order to select the desired language, press **<SEL>** key until the desired option flashes, then press **<ENT>** key to confirm .

User can program the instrument, such as Electrode type, Resolution and more. If chosen **No**, the last configuration will reamin in effect. Press **<SEL>** key until the desired option flashes, then press **<ENT>** key to confirm .

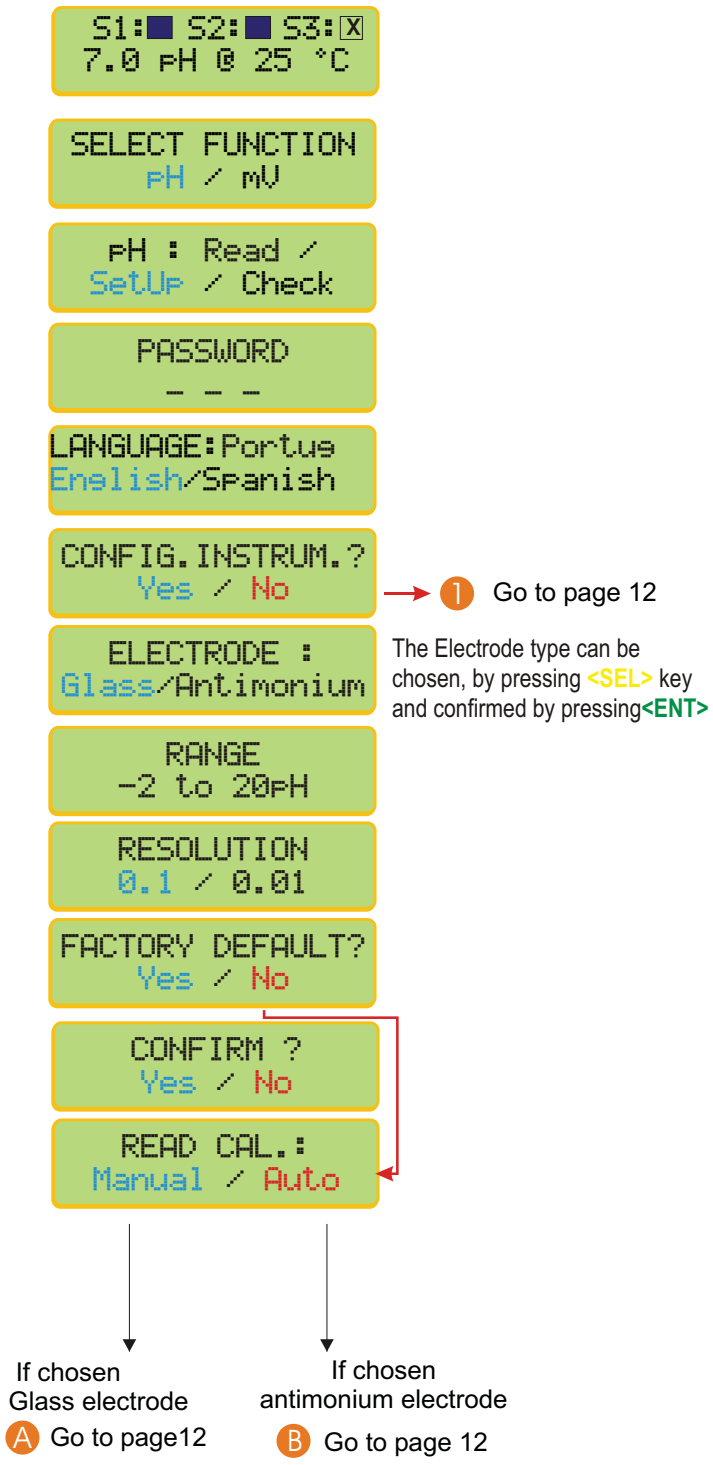
The Range cannot be changed. It is default from factory.

The Resolution can be chosen, by pressing **<SEL>** key until the desired opiton flashes and confirmed by pressing**<ENT>**

You can calibrate the instrument as factory default. Choose **Yes** and confirm and the instrument will calibrate as factory default! This option is offered in case the user does have any other way to perform a calibration procedure.

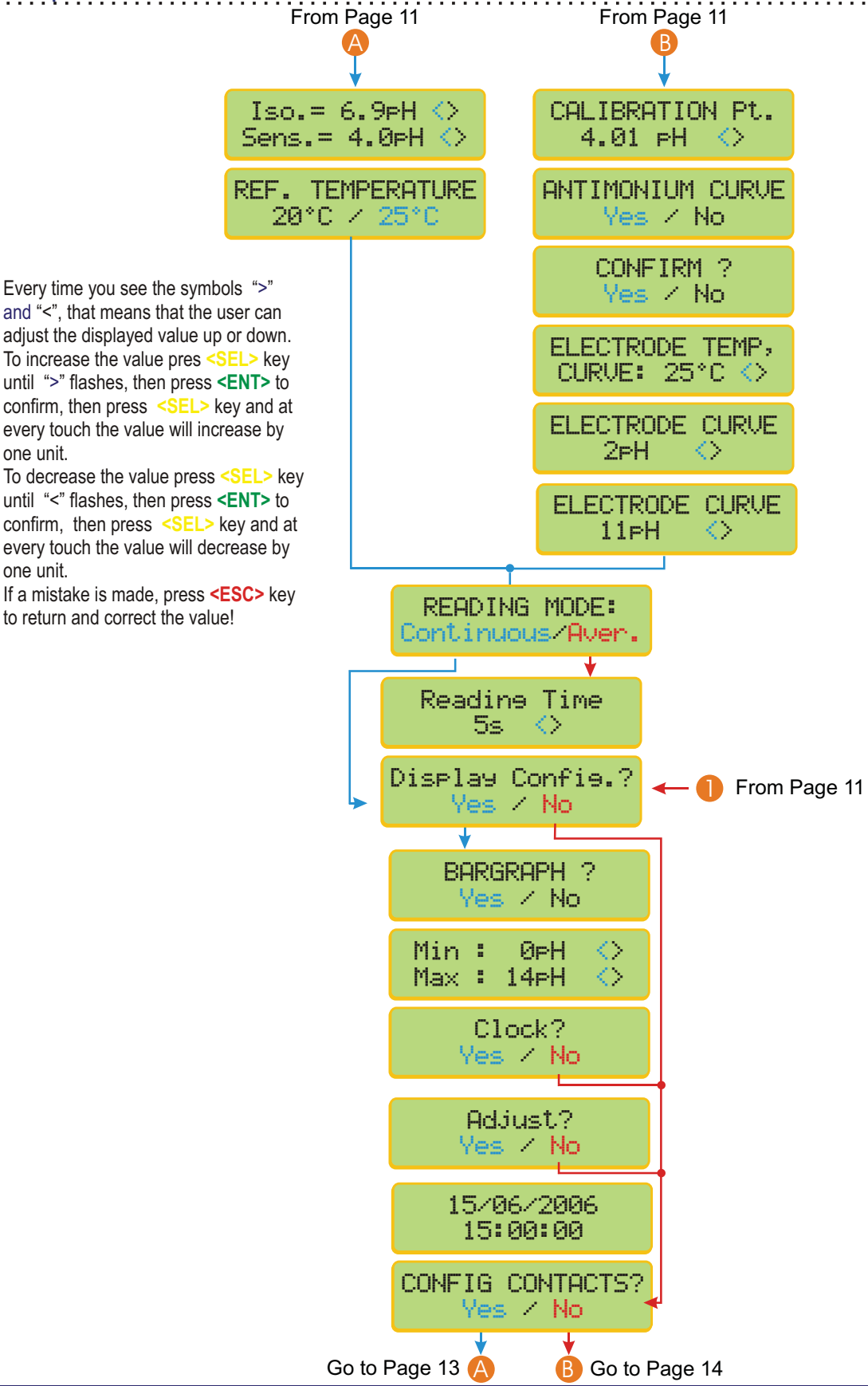
The user will be allowed to adjust the pH value read at sample. Press **<SEL>** until MAN flashes then confirm by presssing **<ENT>**.

Every time you see the symbols ">" and "<", that means that the user can adjust the displayed value up or down.
To increase the value pres **<SEL>** key until ">" flashes, then press **<ENT>** to confirm, then press **<SEL>** key and at every touch the value will increase by one unit.
To decrease the value press **<SEL>** key until "<" flashes, then press **<ENT>** to confirm, then press **<SEL>** key and at every touch the value will decrease by one unit.
If a mistake is made, press **<ESC>** key to return and correct the value!



# 6.1 Equipment Operation - pH - Set Up (cont.)

## Set Up

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To increase the value pres **<SEL>** key until ">" flashes, then press **<ENT>** to confirm, then press **<SEL>** key and at every touch the value will increase by one unit.
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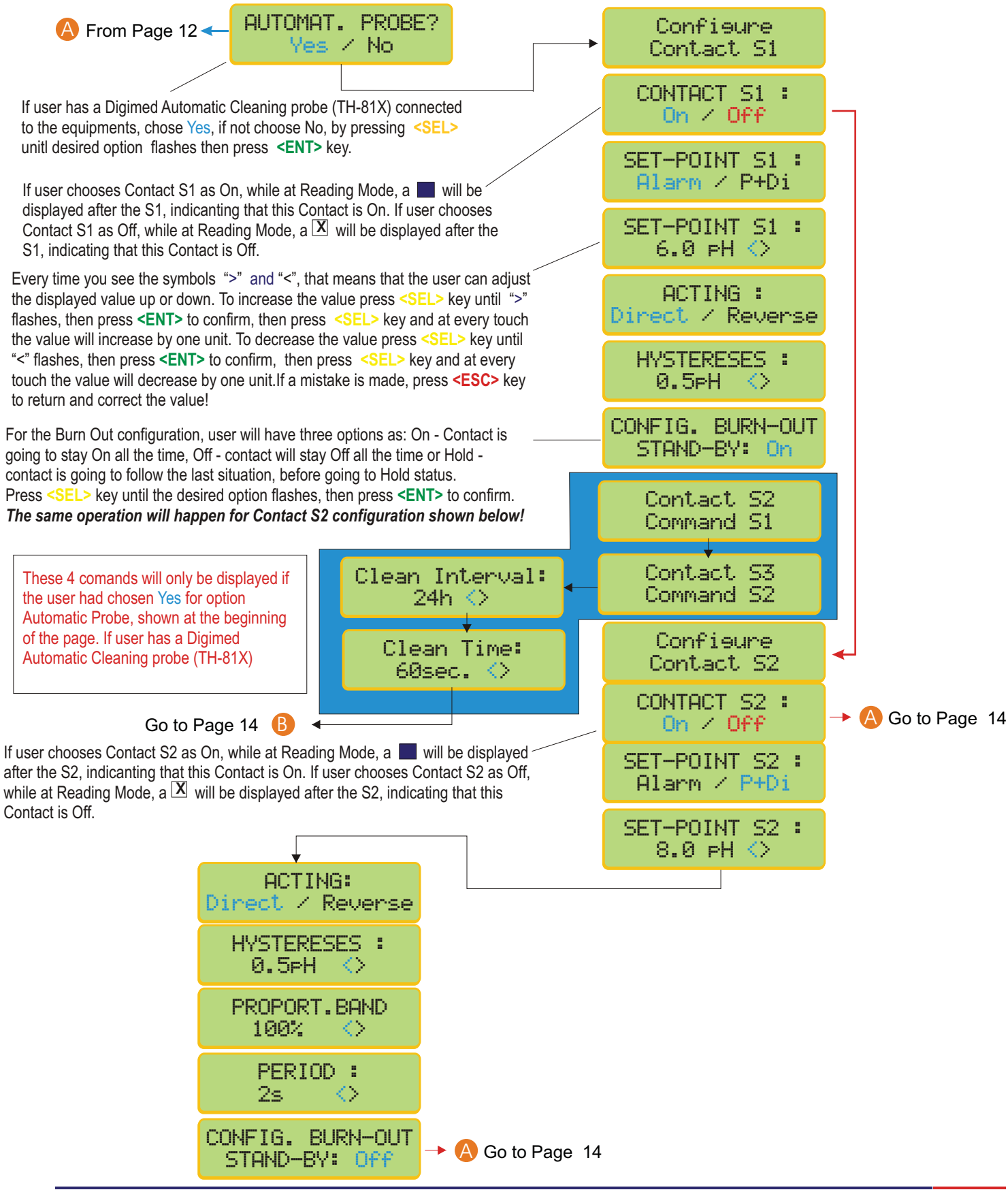
If a mistake is made, press **<ESC>** key to return and correct the value!

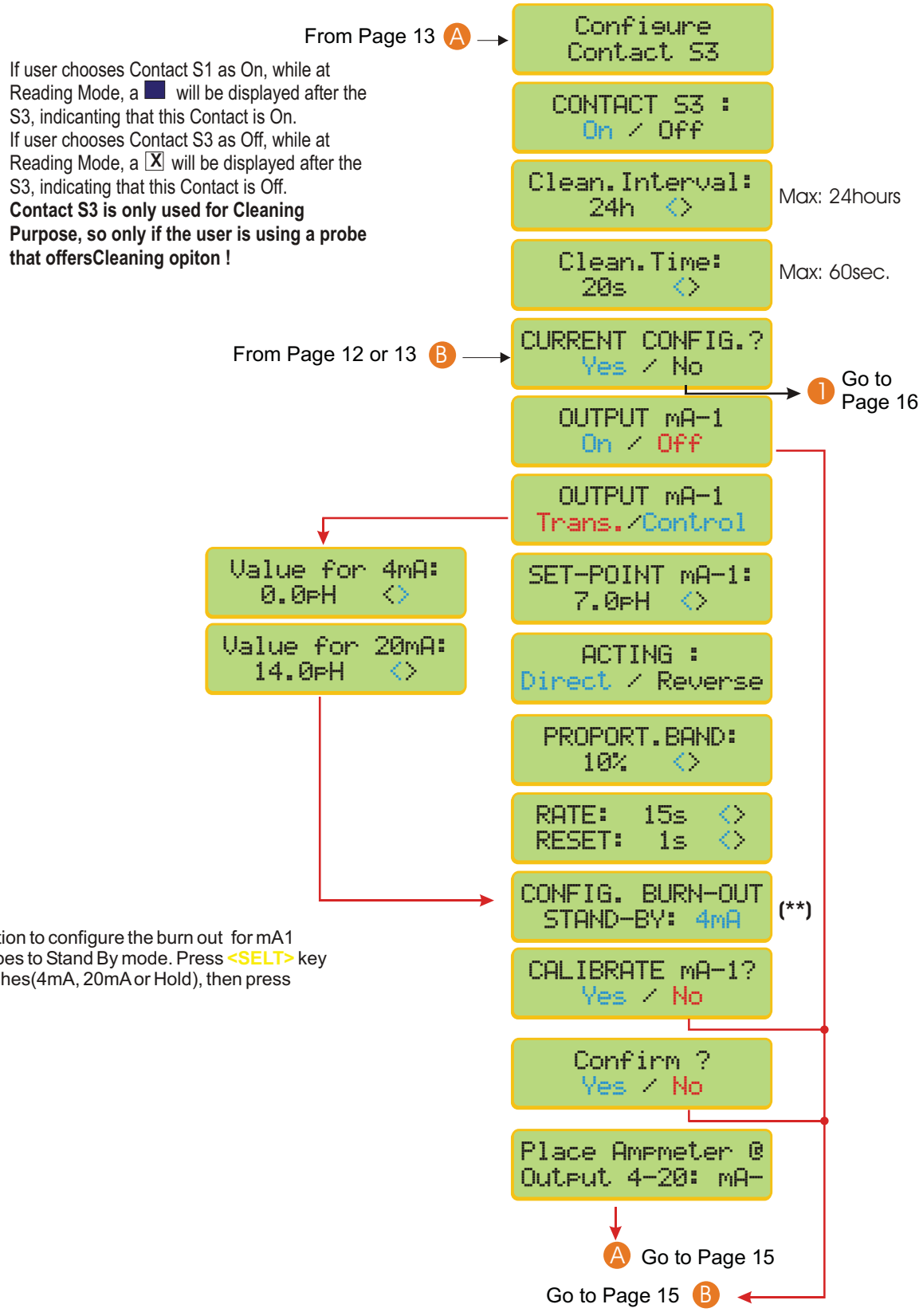
# 6.1 Equipment Operation - pH - Set Up (cont.)

## Set Up



# 6.1 Equipment Operation - pH - Set Up (cont.)

## Set Up

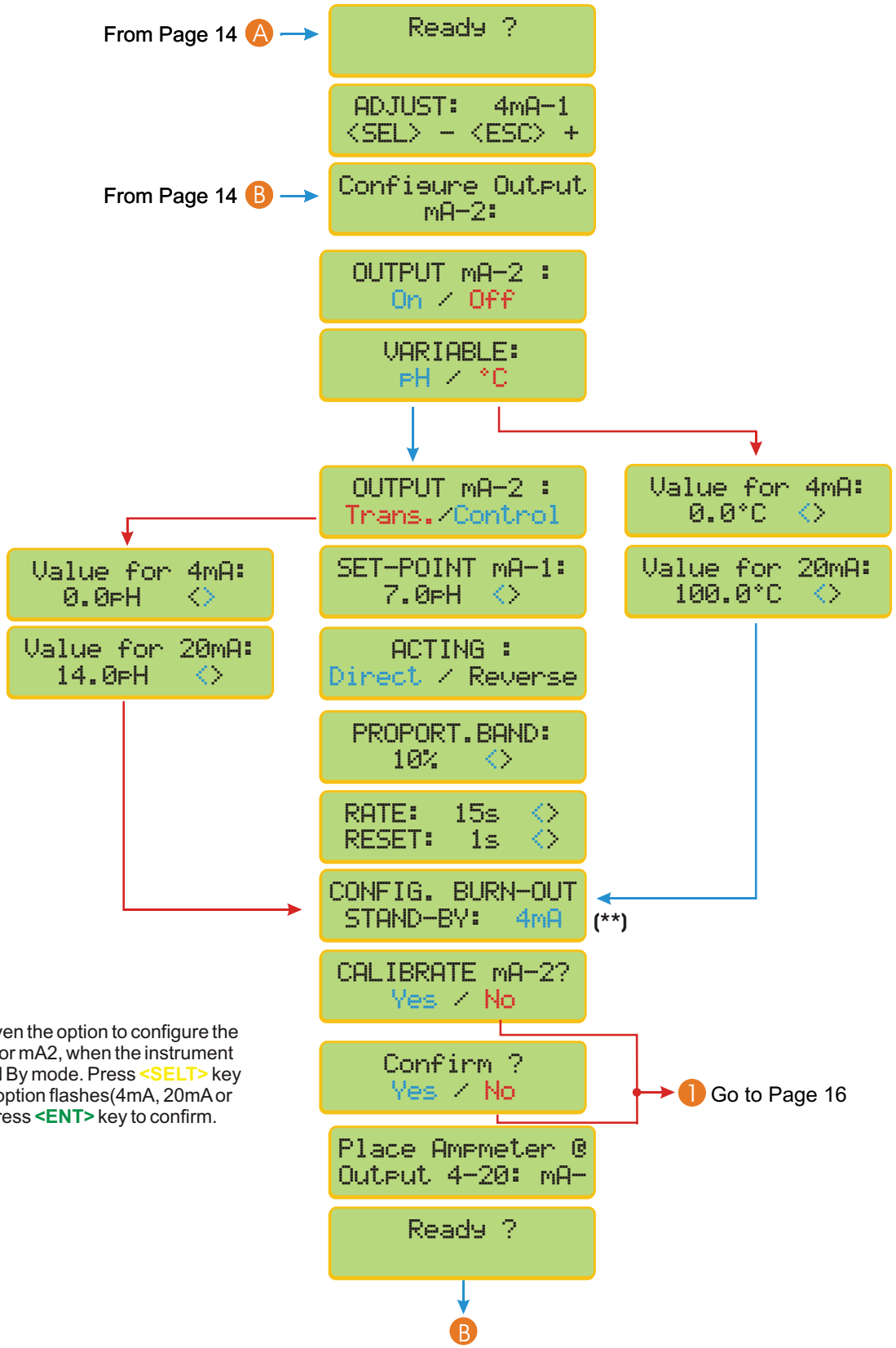



If user chooses Contact S1 as On, while at Reading Mode, a ■ will be displayed after the S3, indicanting that this Contact is On.
If user chooses Contact S3 as Off, while at Reading Mode, a ☒ will be displayed after the S3, indicating that this Contact is Off.
**Contact S3 is only used for Cleaning Purpose, so only if the user is using a probe that offersCleaning opiton !**

(**)User is given the option to configure the burn out for mA1
When the instrument goes to Stand By mode. Press **<SELT>** key
Until desired option flashes(4mA, 20mA or Hold), then press
**<ENT>** key to confirm.

# 6.1 Equipmento Operation - pH - Set Up (cont.)

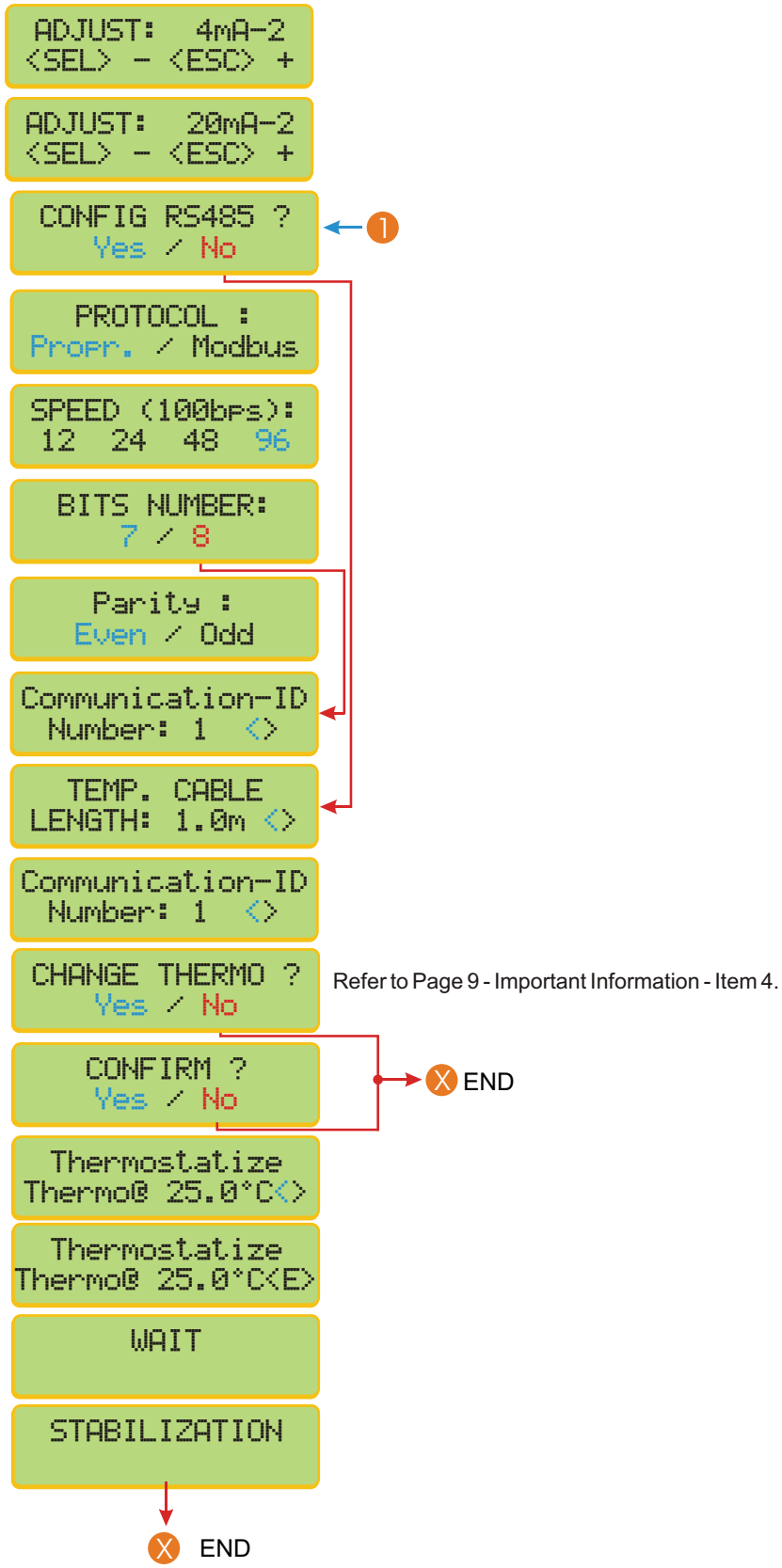
## Set Up




(**)User is given the option to configure the burn output for mA2, when the instrument goes to Stand By mode. Press <SELT> key until desired option flashes(4mA, 20mA or Hold), then press **<ENT>** key to confirm.

# 6.1 Equipment Operation - pH - Set Up (cont.)

## Set Up




Refer to Page 9 - Important Information - Item 4.

# 6.2 Equipment Operation - pH - Calibration

## Calibration

Press and hold **<ESC>** key for about 6 seconds

S1:■ S2:■ S3:X
7.0 pH @ 25 °C

Press **<SEL>** key until pH flashes, then press **<ENT>** to confirm the option chosen.

SELECT FUNCTION
pH / mV

Press **<SEL>** key until Read flashes, then press **<ENT>** to confirm the option chosen.

pH: Read /
Set Up / Check

Press **<SEL>** key until Calibrate flashes, then press **<ENT>** to confirm the option chosen.

pH: Read /
Calibrate

WAIT

Dip electrode at buffer 6.9, like chosen during Set Up operation.

Place Electrode
@ Buffer 6.9pH

Press **<ENT>** key when Ready!

READY ?

WAIT

Wash electrode using plenty of water.

Wash Electrode!

Press **<ENT>** key when Ready!

READY ?

Dip electrode at buffer 4.0, like chosen during Set Up operation.

Place Electrode
@ Buffer 4.0pH

Press **<ENT>** key when Ready!

READY ?

WAIT

CALIBRATION
SUCCESSFUL!

SENSIBILITY
99.9%

This message will be displayed only when any type of problem occurs. Please check your electrode and solutions to make sure they are in proper conditions.

Check Electrode
High Iso <Enter>

# 6.3 Equipment Opeation - pH - Read

## Read

Press and hold **<ESC>** key to exit reading Mode and access the Select Function Menu, then press **<SEL>** until pH flashes, then press **<ENT>** To confirm.

Press **<SEL>** until Read flashes, then press **<ENT>** to confirm.

Press **<SEL>** until Read flashes, then press **<ENT>** to confirm.

When Ready, press **<ENT>** key

After the Reading is performed the following screen will be displayed. In order to place the instrument in Stand-by Model, press **<ENT>** key and press **<ESC>** key to go back. Refer to instructions on Page 10(***)
In order to advance, press **<SEL>** key

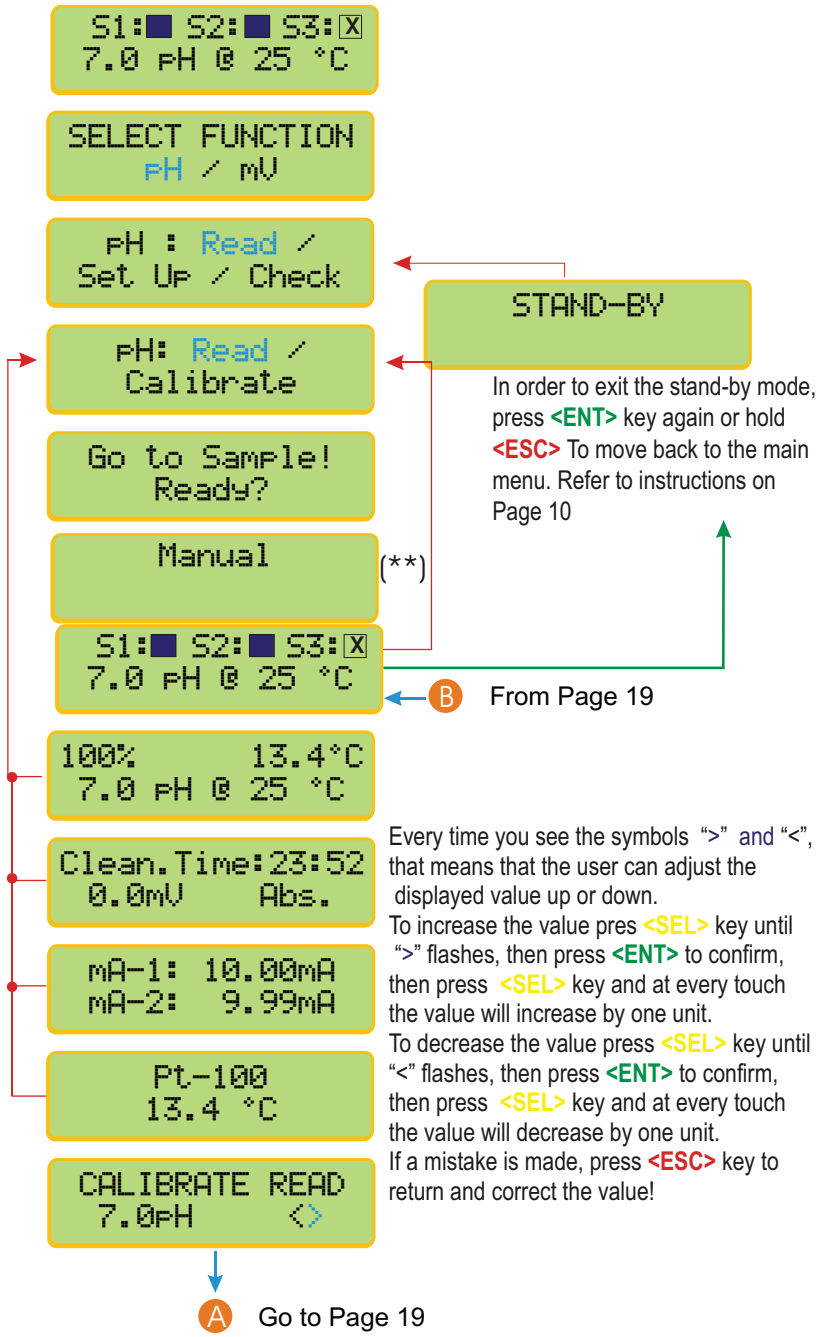
In order to advance, press **<SEL>** key

In order to advance, press **<SEL>** key

In order to advance, press **<SEL>** key

In order to advance, press **<SEL>** key

In order to adjust the value read, Press **<SEL>** key, if chosen Man, During Set Up, for Reading Calibr..




In order to exit the stand-by mode, press **<ENT>** key again or hold **<ESC>** To move back to the main menu. Refer to instructions on Page 10

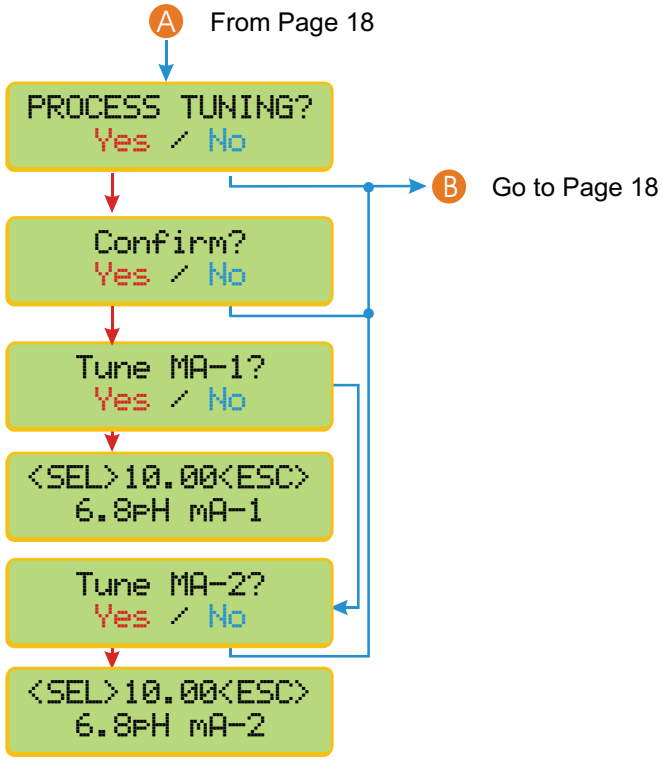
Every time you see the symbols ">" and "<", that means that the user can adjust the displayed value up or down.
To increase the value pres **<SEL>** key until ">" flashes, then press **<ENT>** to confirm, then press **<SEL>** key and at every touch the value will increase by one unit.
To decrease the value press **<SEL>** key until "<" flashes, then press **<ENT>** to confirm, then press **<SEL>** key and at every touch the value will decrease by one unit.
If a mistake is made, press **<ESC>** key to return and correct the value!

(**) A flashing display will show the Thermo type attached to the instruments, that could be: Manual, NTC, Pt100, Pt1000 or Pt3000 (Balco).

# 6.3 Equipment Operation - pH - Read (cont.)

## Read

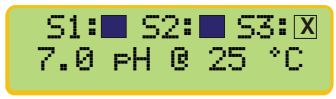
This option will be accessed only if the user chooses Control for Current Control while at Set Up operation, see page 14. This operation will allow the user to fine tune the outputs in order to correct the pH Value needed.



# 6.4 Equipment Operation - pH - Check

## Check

Press and hold **<ESC>** key in order to access the Select Function Menu, then press **<SEL>** until pH Flashes, then press **<ENT>** to confirm.

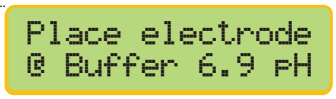




Press **<SEL>** until Check flashes, then press **<ENT>** to confirm.



Dip electrode at buffer 6.9, like chosen during Set Up operation.




Press **<ENT>** key when Ready!

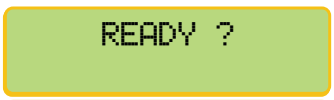


Wash electrode using plenty of water.


Press **<ENT>** key when Ready!


Dip electrode at buffer 4.0, like chosen during Set Up operation.


Press **<ENT>** key when Ready!

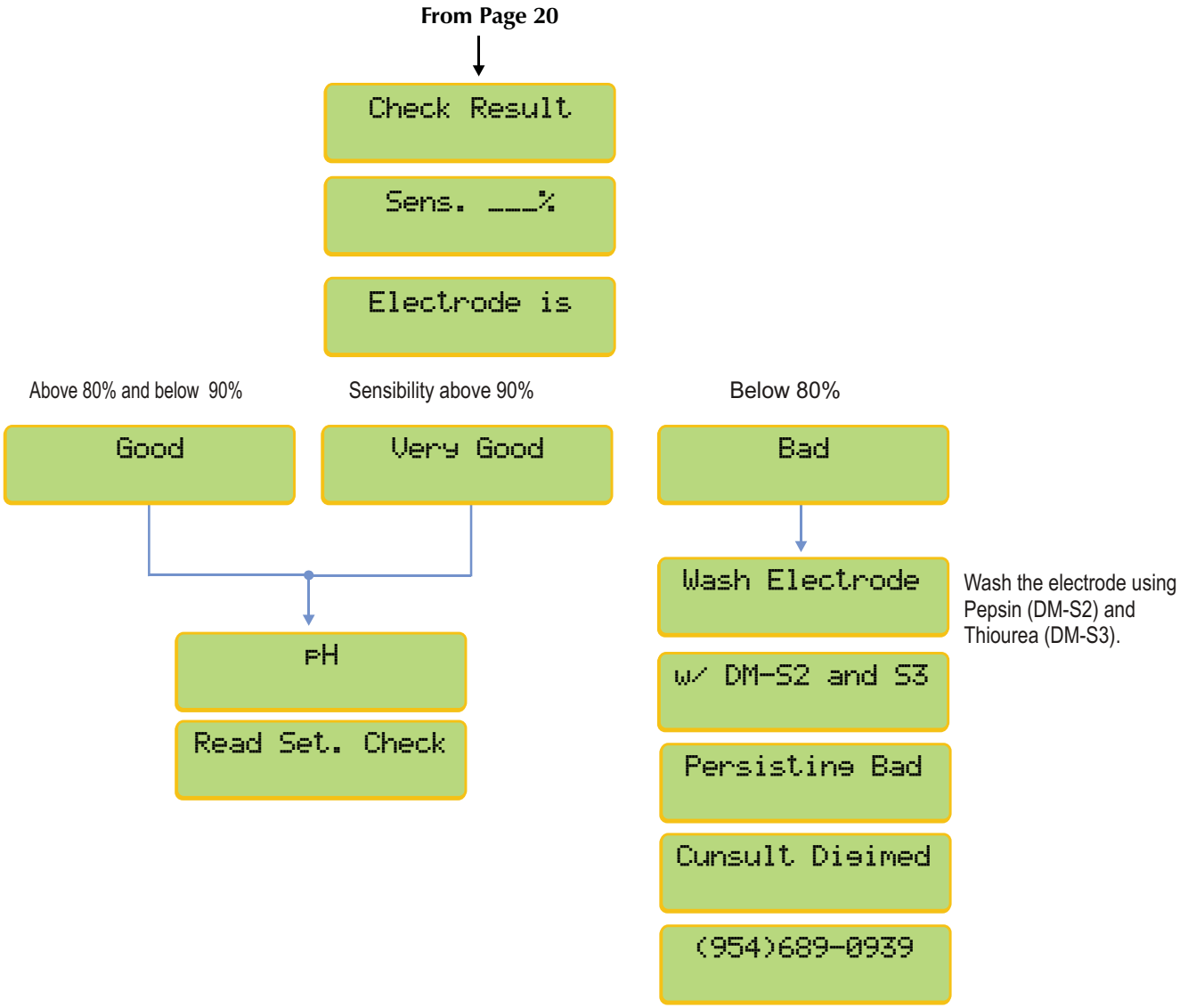




A Go to Page 21

# 6.4 Equipment Opeartion - pH - Check (cont.)

## Check



# 6.5 Equipment Operation - mV - Set Up

## Set Up

Press and hold **<ESC>** key in order to access the Select Function Menu, then press **<SEL>** until mV Flashes, then press **<ENT>** to confirm.

Press **<SEL>** unitl **Set Up** flashes then

A Password is required in order to access the SET UP. Press in sequence **<SEL>**, **<ENT>** and **<ESC>** keys.

In order to select the desired language, press **<SEL>** key until the desired option flashes, Then press **<ENT>** key to confirm .

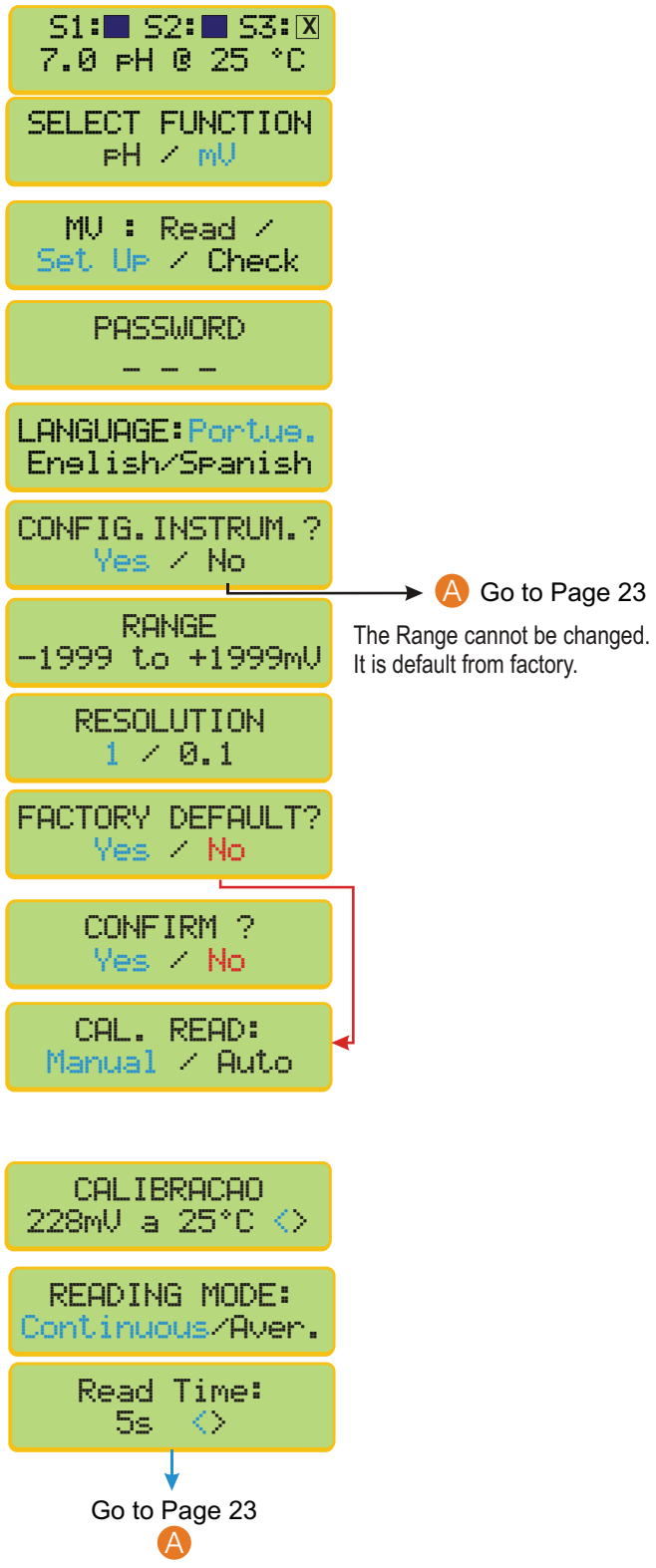
User can program the instrument, such as Electrode type, Resolution and more. If chosen **No**, the last configuration will reamin in effect. Press **<SEL>** key until the desired option flashes, then press **<ENT>** key to Confirm .

The Resolution can be chosen, by pressing **<SEL>** key and confirmed by pressing**<ENT>**

You can calibrate the instrument as factory default. Choose **Yes** and confirm and the instrument will calibrate as factory default! This option is offered in case the user does have any Other way to perform a calibration procedure.

The user will be allowed to adjust the pH value read at sample. Press **<SEL>** until MAN flashes then confirm by presssing **<ENT>**.

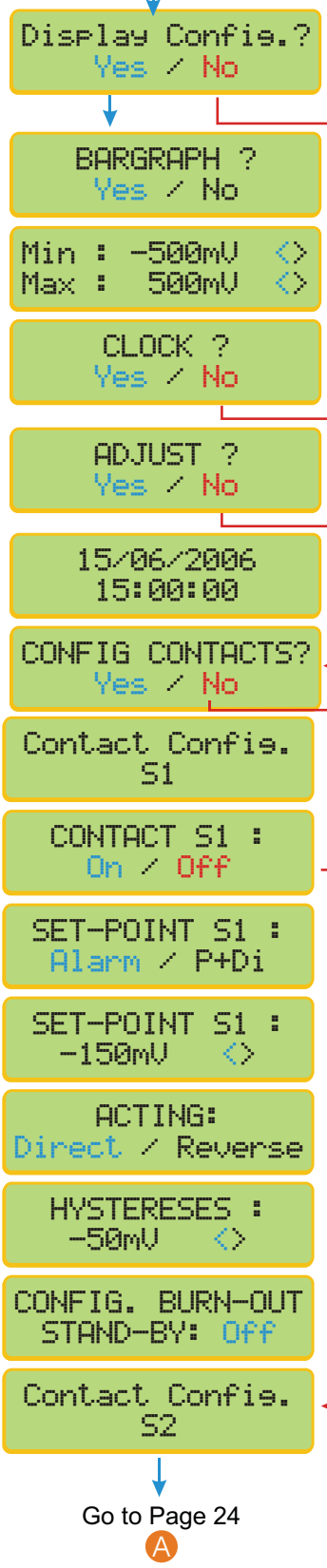
Every time you see the symbols ">" and "<", that means that the user can adjust the displayed value up or down. To increase the value pres **<SEL>** key until ">" flashes, then press **<ENT>** to confirm, then press **<SEL>** key and at every touch the value will increase by one unit. To decrease the value press **<SEL>** key until "<" flashes, then press **<ENT>** to confirm, then press **<SEL>** key and at every touch the value will decrease by one unit. If a mistake is made, press **<ESC>** key to return and correct The value!



# 6.5 Equipment Operation - mV - Set Up (cont.)

## Set Up

From Page 22 (A)




(A) Go to Page 25

Every time you see the symbols ">" and "<", that means that the user can adjust the displayed value up or down. To increase the value press **<SEL>** key until ">" flashes, then press **<ENT>** to confirm, then press **<SEL>** key and at every touch the value will increase by one unit. To decrease the value press **<SEL>** key until "<" flashes, then press **<ENT>** to confirm, then press **<SEL>** key and at every touch the value will decrease by one unit.If a mistake is made, press **<ESC>** key to return and correct the value!

If user chooses Contact S1 as On, while at Reading Mode, a ■ will be displayed after the S1, indicanting that this Contact is On. If user chooses Contact S1 as Off, while at Reading Mode, a [X] will be displayed after the S1, indicating that this Contact is Off.

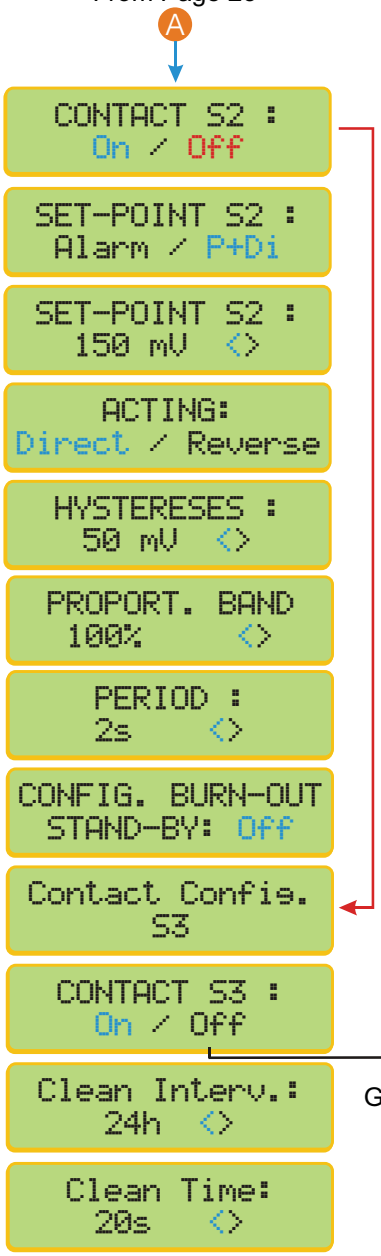
For the Burn Out configuration, user will have three options as: On - Contact is going to stay On all the time, Off - contact will stay Off all the time or Hold - contact is going to follow the last situation, before going to Hold status. Press **<SEL>** key until the desired option flashes, then press **<ENT>** to confirm.

Go to Page 24 (A)

# 6.5 Equipment Operation - mV Set Up (cont.)

## Set Up

From Page 23



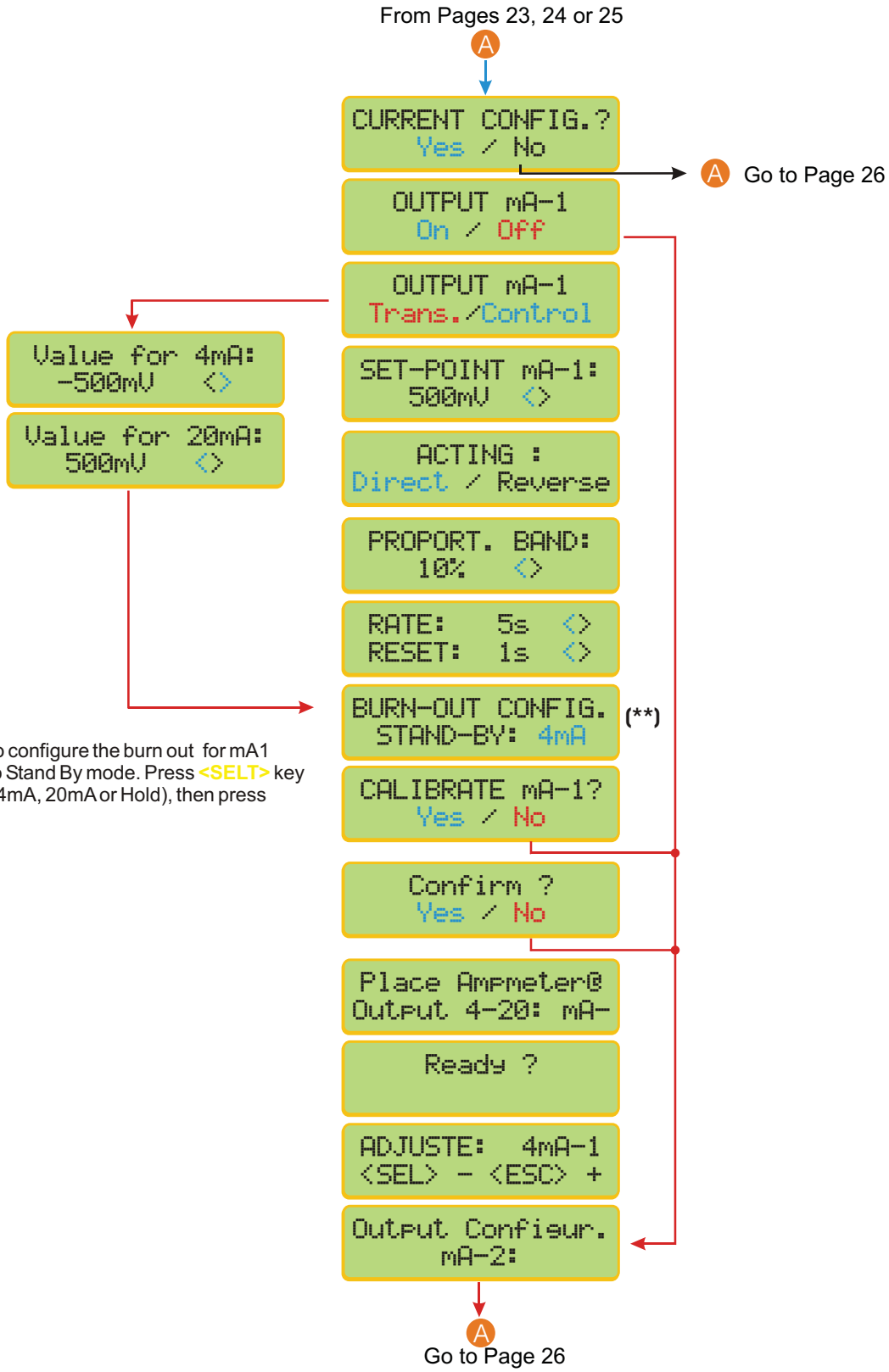

A Go to Page 25

For the Burn Out configuration, user will have three options as: On - Contact is going to stay On all the time, Off - contact will stay Off all the time or Hold - contact is going to follow the last situation, before going to Hold status.
Press **<SEL>** key until the desired option flashes, then press **<ENT>** to confirm.

If user chooses Contact S1 as On, while at Reading Mode, a ■ will be displayed after the S3, indicanting that this Contact is On.
If user chooses Contact S3 as Off, while at Reading Mode, a X will be displayed after the S3, indicating that this Contact is Off.
**Contact S3 is only used for Cleaning Purpose, so only if the user is using a probe that offersCleaning opiton !**

# 6.5 Equipment Operation - mV Set Up (cont.)

## Set Up

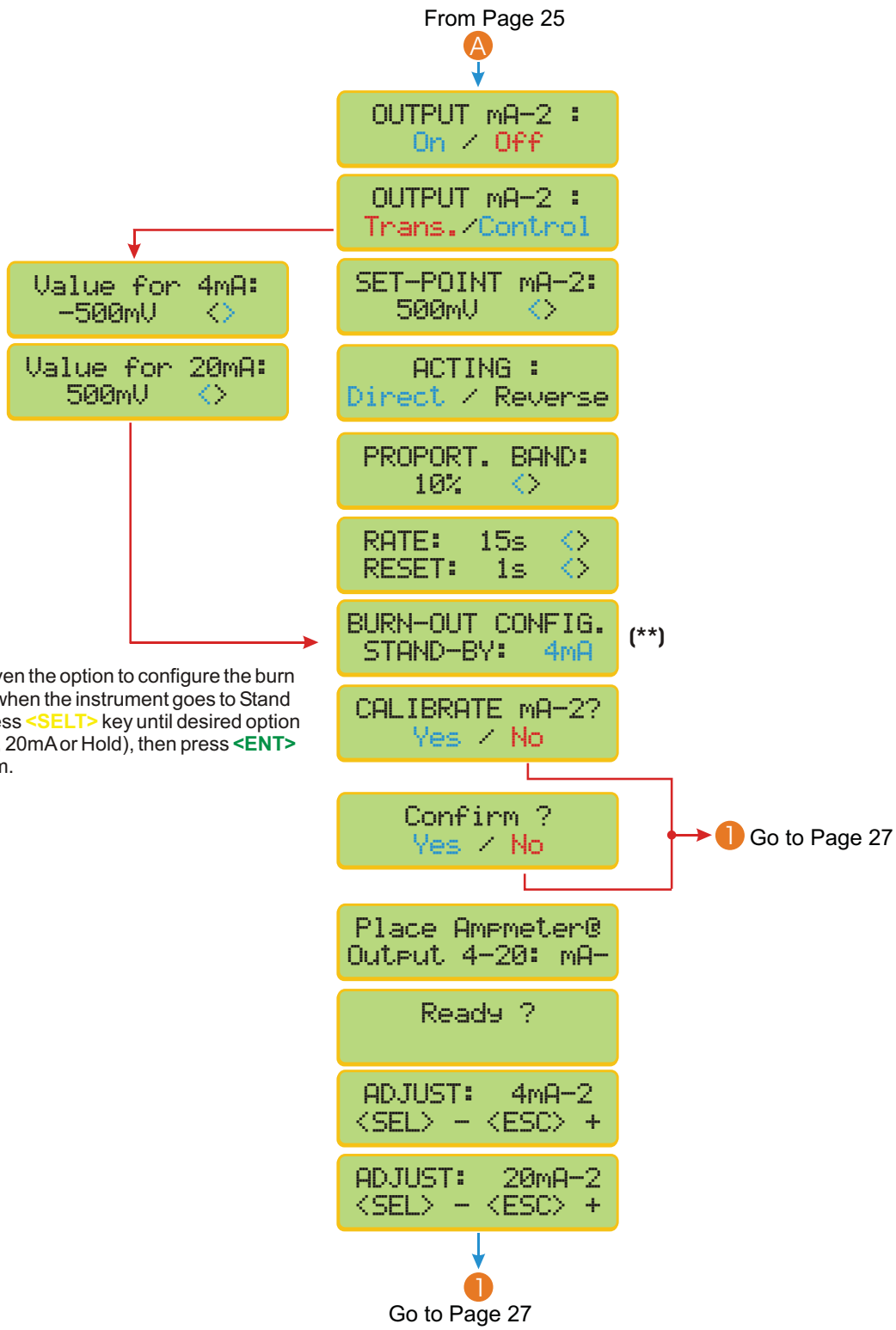



(**)User is given the option to configure the burn out for mA1 When the instrument goes to Stand By mode. Press **<SELT>** key Until desired option flashes(4mA, 20mA or Hold), then press **<ENT>** key to confirm.

# 6.5 Equipment Operation - mV - Set Up (cont.)

## Set Up

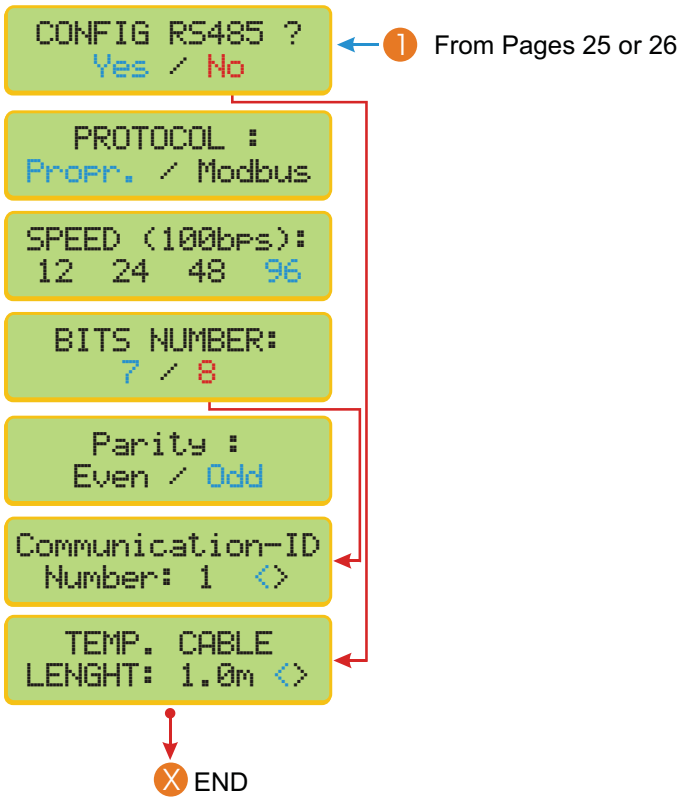
From Page 25




(**)User is given the option to configure the burn out for mA1 when the instrument goes to Stand By mode. Press **<SELT>** key until desired option flashes(4mA, 20mA or Hold), then press **<ENT>** Key to confirm.

# 6.5 Equipment Operation - mV - Set Up (cont.)

## Set Up



# 6.6 Equipment Operation - mV - Calibration

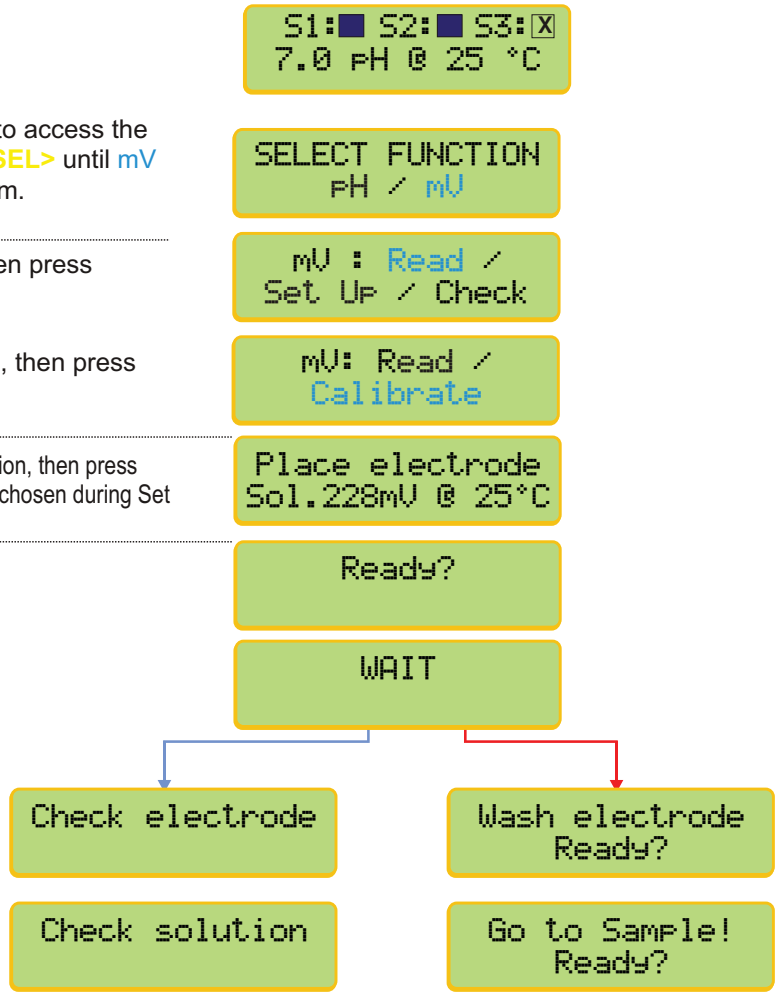
## Calibration

Press and hold **<ESC>** key in order to access the Select Function Menu, then press **<SEL>** until mV Flashes, then press **<ENT>** to confirm.

Press **<SEL>** until Read flashes, then press **<ENT>** to confirm.

Press **<SEL>** until Calibrate flashes, then press **<ENT>** to confirm.

Wash electrode then dip into the required solution, then press **<ENT>** key to confirm. The solution value was chosen during Set Up operation.



# 6.7 Equipment Operation - mV - Check

## Check

Press and hold **<ESC>** key in order to access the Select Function Menu, then press **<SEL>** until mV Flashes, then press **<ENT>** to confirm.

Press **<SEL>** until Check flashes, then press **<ENT>** to confirm.

Wash electrode then dip into the required solution, then press **<ENT>** key to confirm. The solution value was chosen during Set Up operation.

This message will be displayed only when any type of problem occurs. Please check your electrode and solutions to make sure they are in proper conditions.

# 6.8 Equipment Operation - mV - Read Absolute

## Read Absolute

Press and hold **<ESC>** key in order to access the Select Function Menu, then press **<SEL>** until mV Flashes, then press **<ENT>** to confirm.

Press **<SEL>** until Read flashes, then press **<ENT>** to confirm.

Press **<SEL>** until Read flashes, then press **<ENT>** to confirm.

Press **<SEL>** until Abs. flashes, then press **<ENT>** to confirm.

Press **<ENT>** to confirm.

In order to access Output values, press **<ENT>**

In order to advance, press **<SEL>** key

In order to advance, press **<SEL>** key

In order to adjust the value read, prress **<SEL>** key, if chosen Man, During Set Up, for Reading Calibr..

This option will be accessed only if the user chooses Control for Current Control while at Set Up operation, see page 14.
This operation will allow the user to fine tune the outputs in order to Correct the pH value needed.

# 6.9 Equipment Operation - mV - Read Relative

## Read Relative

Press amd hold **<ESC>** key in order to access the Select Fnnction Menu, then press **<SEL>** until mV Flashes, then press **<ENT>** to confirm.

Press **<SEL>** until Read flashes, then press **<ENT>** to confirm.

Press **<SEL>** until Read flashes, then press **<ENT>** to confirm.

Press **<SEL>** until Rel. flashes, then press **<ENT>** to confirm.

Go to Zero, then press **<ENT>** to confirm.

Press **<ENT>** to confirm

Wash the electrode , then press **<ENT>** to confirm.

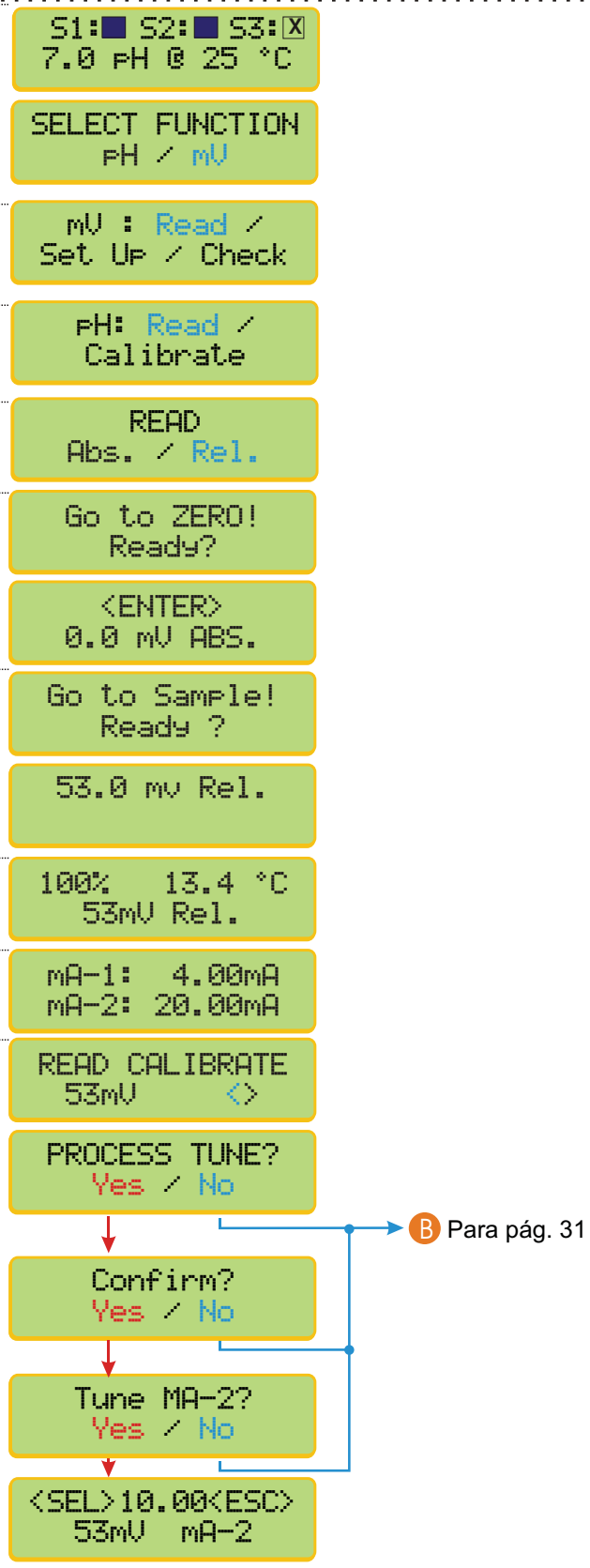
In order to access Output values, press **<ENT>**

In order to advance, press **<SEL>** key

In order to advance, press **<SEL>** key

In order to adjust the value read, prress **<SEL>** key, if chosen Man, During Set Up, for Reading Calibr..

This option will be accessed only if the user chooses Control for Current Control while at Set Up operation, see page 14.
This operation will allow the user to fine tune the outputs in order to Correct the pH value needed.

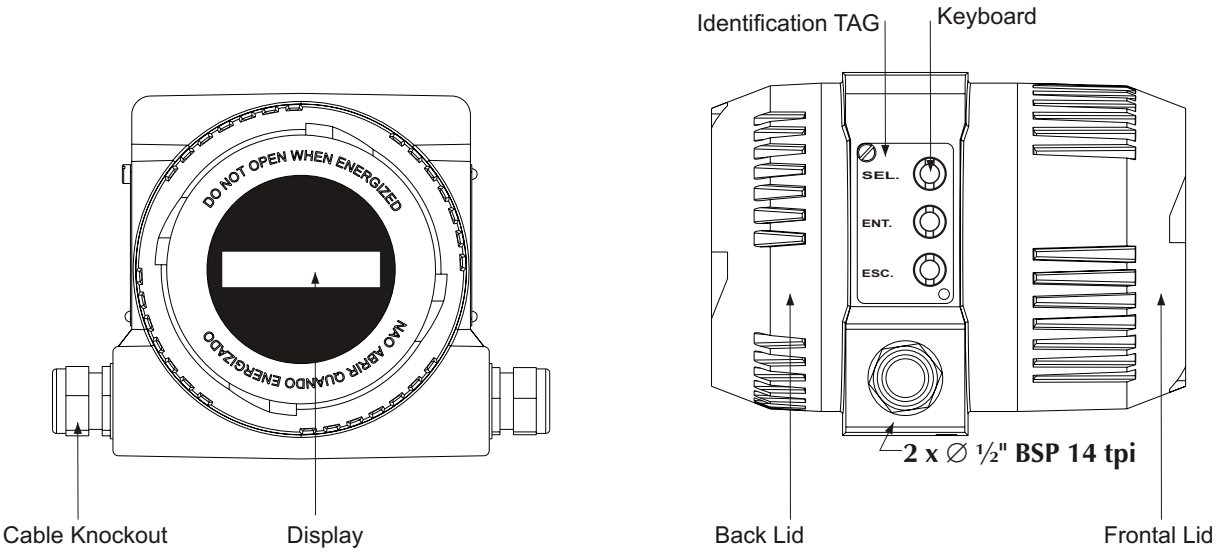


# 7. Maintenance

## Case dismount and assembly

This method has the objective to instruct technical personel on how to proceed during dismount and assembling the instruments case.
Necessary Tool - Hex Bolt Driver ¼”

## Parts Description




## Disassemble Procedure

1- Un-thread both back and frontal lids.
2- Remove the identification TAG that covers the keyboard, located on the side of the instrument.
3- Using a command tool, remove the metallic keys from the keyboard (contact manufacture), approximately3 turns.
4- Using the 1/4"Hex Driver, un-thread the hex bolt that holds the circuit board set in place.
5- Carefully remove the circuit board set from the case.

## Assemble Procedure

1- Carefully place the circuit board set back into the case.
2- Using the command toll, tie the keyboard keys in place (approximately 3 turns), then verify if they are working properly, paying attention to the keys sound.
3- Using the 1/4” Hex driver, screw the hex bolts in place at the circuit board set.
4- Once the keyboard keys are in place, tie the hex bolt at the circuit board set to the case.
5- Place the identification TAG in place.
6- Thread both Frontal and Back lis in place.