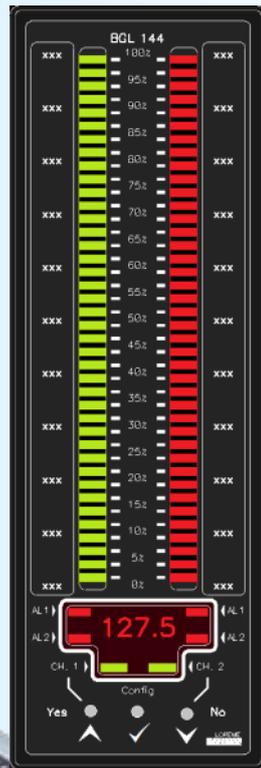


***LED BARGRAPH METER single or dual channel
4...20mA, 0...10V inputs, dimensions 144 x 48mm***

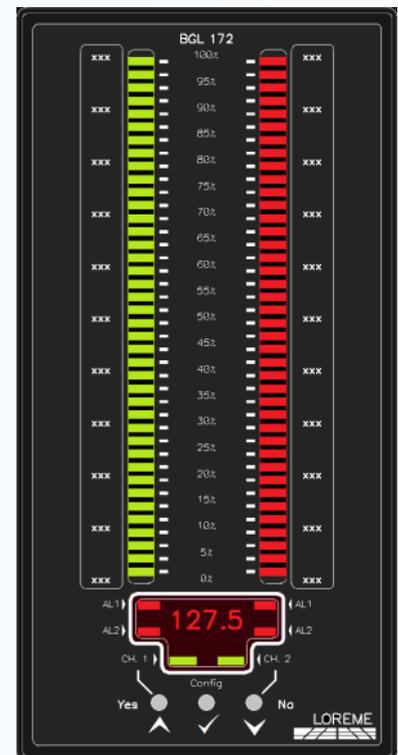
LOREME

CONFIGURATION HANDBOOK

BGL144



BGL172



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Device Presentation

The programmable bargraph BGL144/BGL172 allows with the two ramp and the display, to evaluate easily the state of his process inputs.

It's necessary to notice the difference between different models:

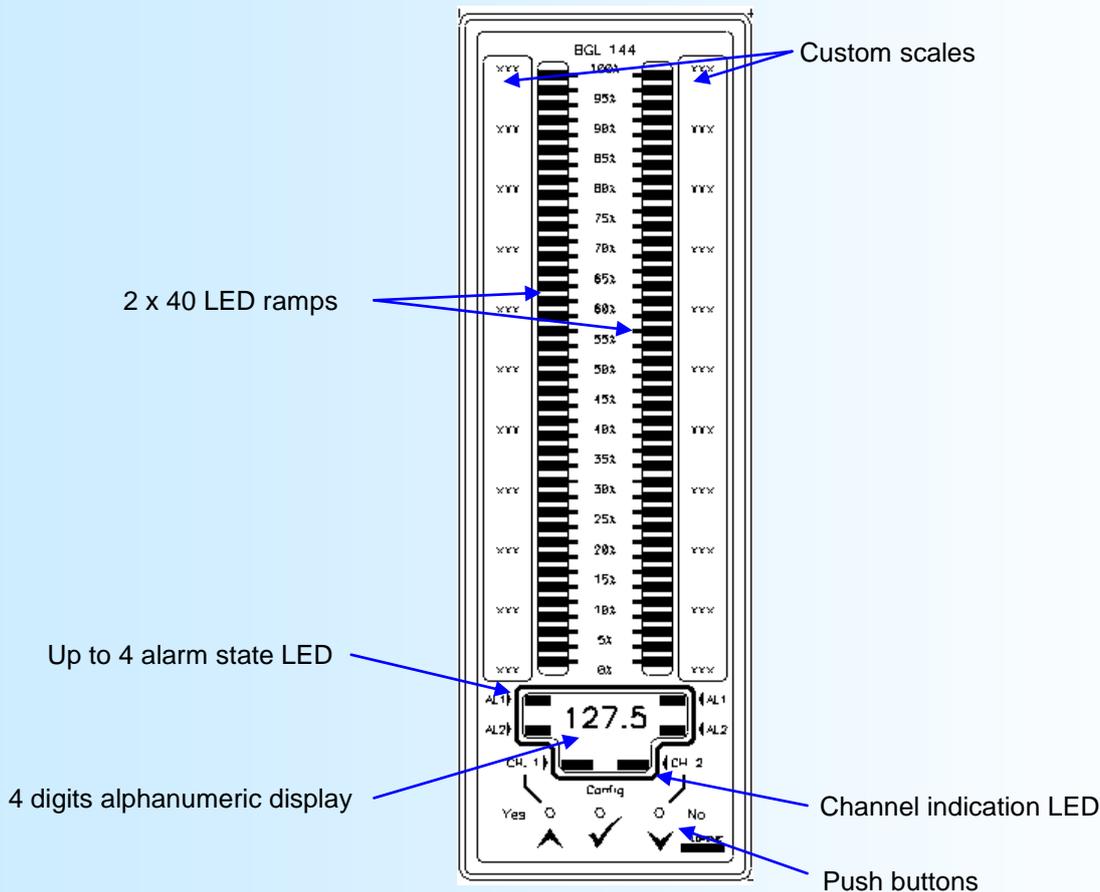
- BGL144-1:** simple ramp version with display,
- BGL144-2:** double ramp version with display,
- BGL144L:** no display version,
- BGL144H:** Horizontal mounting version.

And the option available:

- /R1, /R2 :** 1 or 2 alarm relays.
- /R3, /R4 :** 2 alarm relays + 1 or 2 relay slot.
- /S :** 1 analogical output.
- /CM, /CP :** 1 RS485 Modbus or Profibus link.
- /CMPTCP :** 1 Ethernet Modbus TCP link.

The technical data sheets are downloadable here: http://www.loreme.fr/fichtech/BGL144_eng.pdf
http://www.loreme.fr/fichtech/BGL172_eng.pdf

USER INTERFACE

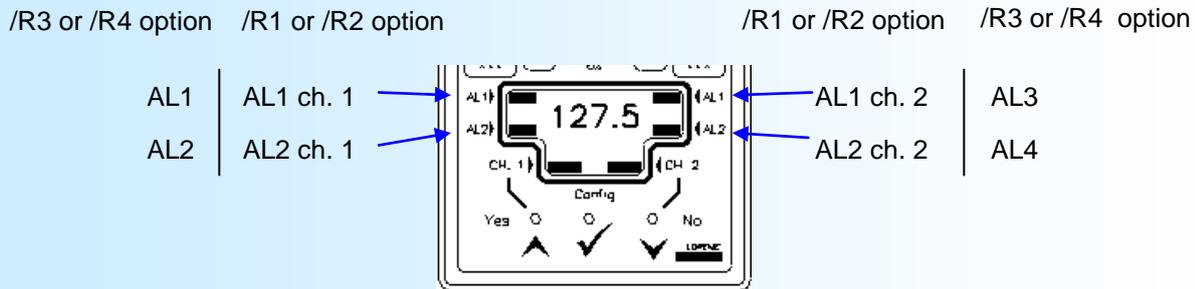


The device front panel includes:

- 1 dot matrix display of 4 digits, 10 000 points resolution,
- One 40 LED ramp for each channel,
- 2 LED to indicate the displayed channel,
- 2 Alarm LED by channel,
- 3 push buttons:
 - ✓ Access configuration mode.
 - ▲ Display the channel 1.
 - ▼ Display the channel 2.

Configuration via the front face

1) Alarms LED indication



2) Change alarm thresholds

The user can change de threshold by the front panel, if relays are configured in threshold detection and access to set- ting is allowed.

After pressing on both the ✓ (config) and ▲ (up) buttons (or ✓ (config) and ▼ (down) buttons), the string « Threshold 1 » is displayed. Press the ▲ (up) button to access the threshold's value setting or ▼ (down) to skip and change to next alarm threshold access. During the setting, the settled alarm LED is blinking.

To modify the value, use the ▲ (up) or ▼ (down) buttons. Store the new value with ✓ (config) button.

Note:

The device stop measuring when the user access to the threshold setting. The state of the relay don't change. the measurement restart when the user leaves the setting procedure.

If there is no action on the push button during 30 seconds, the device leaves the setting mode automatically without taking care of the modified threshold.

3) Configure the device with the front panel

Access to the configuration mode is done by pressing the ✓ (Config) button. For each rubric a message scrolls on the display. The ▲ (YES) activates the function or provides access to the parameter setting. The ▼ (NO) disables the function or skips to the next rubric.

Setting a value is made with the ▲, ▼ buttons. All parameters are limited except the display range scale. (the message LOW or HIGH is display in overflow case). Press the ✓ (Config) button to validate the value.

Parameters that can be modified are:

- The messages language,
- The measure channel configuration (input type, scales, square root function, display range),
- The relays configuration (detection type, threshold type, threshold, hysteresis, delay),
- The damping time measurement,
- The Led display type (display dot or ramp/bar)

When changing the input type, a new measuring range is required.

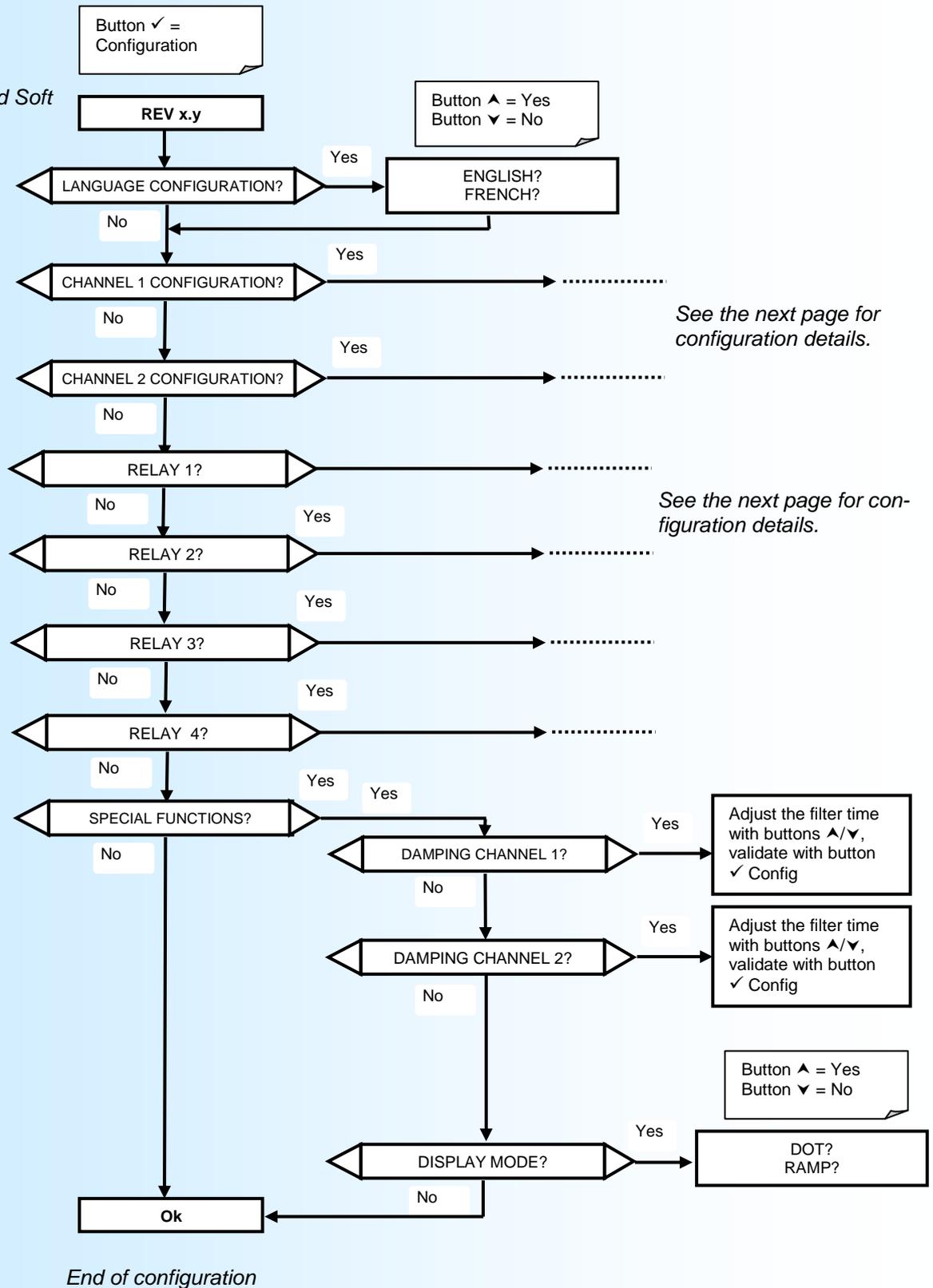
The display range includes 3 settings parameters:

- The low scale,
- the high scale,
- the mid range point.

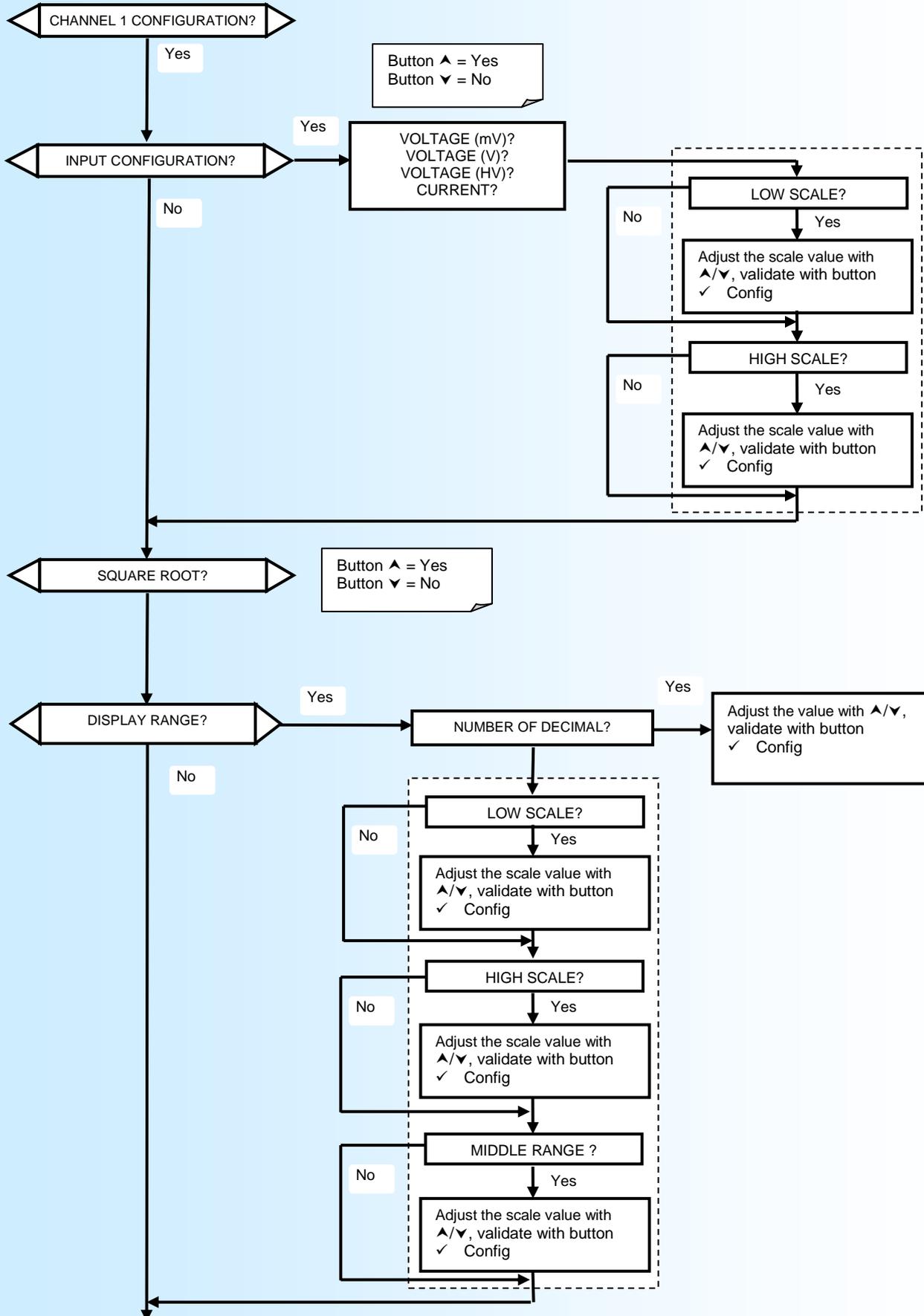
This mid range value is automatically computed when the low or high scale are modified.

4) Configuration flow chart

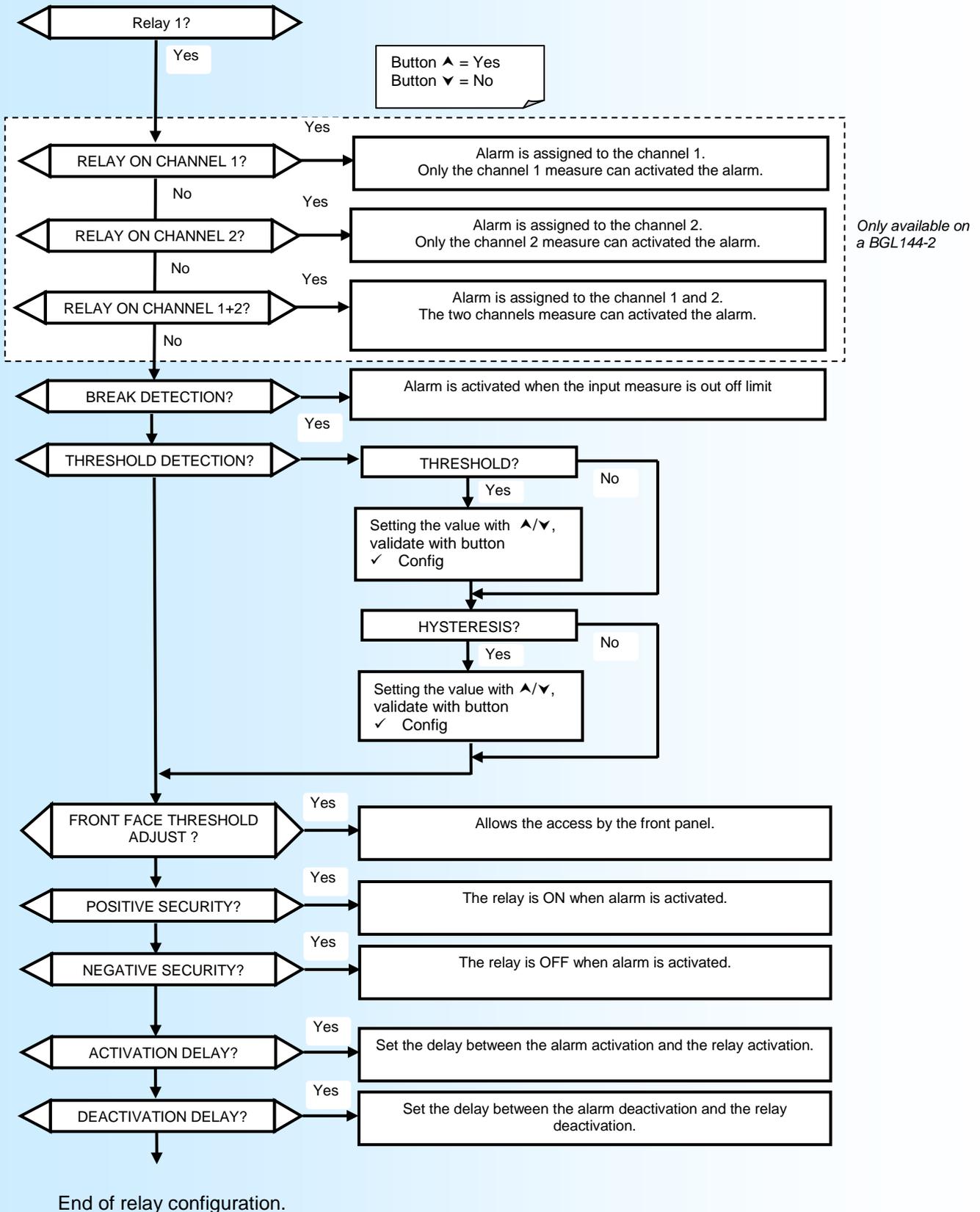
Show the Hard and Soft revision



5) Flow chart of channel configuration



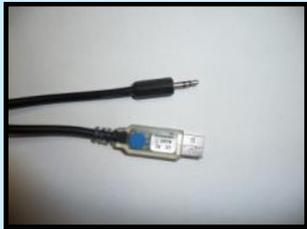
6) Flow chart of relay configuration



RS232 link setting

The device can be configured or updated in terminal mode via an RS232 link.

Step 1: Driver installation for USB / RS232 adapter



- download driver at www.loreme.fr:
http://www.loreme.fr/aff_produits.asp?rubid=53&langue=fr
 - Click on executable file to install the driver,
 - Plug the cable on a USB port, Windows install a new serial communication port **COMx** (x >= 4).
- Note :**
The use of the cable on another USB port don't generates a new communication port. Use of another adapter generates another communication port number (COMx) and requires the reconfiguration of the HyperTerminal.

Step 2: Setting of terminal emulation software (PC with Windows).

1 The terminal emulation software for PC « HyperTerminal » is resident in windows up to XP version. For later versions, it is downloadable on : www.loreme.fr in **download part** (<http://www.loreme.fr/HyperTerm/htpe63.exe>)
=> Run the downloaded software to install it.

2 Start a "hyper Terminal" connection :
- Click on "**START**" button
Up to XP version
- Go to "**Programs \ Accessories \ Communication \ Hyper Terminal**"
- Click on "**Hypertrm.exe**"
Or if the software was downloaded
- Go to "**All programs \ HyperTerminal Private Edition**"
- Click on "**HyperTerminal Private Edition**"

3 Enter name for the new connection

4 Choose the communication port related to the adapter.

5

Choose:
- 9600 bauds
- 8 DATA bits
- no parity
- 1 stop bit
- **XON/XOFF**

6 The PC is now in terminal mode, connect it to the device by plugging the RS232 cable. The measure is now displayed on the terminal. To access configuration, press 'C' key.

7 When leaving Hyper terminal, the following window will appear. By saving, the terminal session will start with the same configuration.

Thus, the shortcut **LOREME.ht** will permit to communicate with all LOREME devices.

Note: to modify the parameters of terminal mode whereas this one is already started, it is necessary, after having carried out the modifications, to close the terminal and to open it again so that the modifications are effective.

- Display range. Setting the value of the low scale, high scale and the middle scale. The number of decimal and the display unit can be choose (only for terminal display).

The middle scale value is computed every time you change the input type, the measurement scale, the high or low value of display range.

The display range allows to interpret the input signal into a physical unit, human readable.

Ex: Voltage input 0-10V

Low display: 0%, high display: 100%, midrange display: 50%,

=> we have a display of 0% for 0 V input, 50% for 5 V and 100% for 10 V.

4) Relay configuration

This section is composed of:

- The alarm assignment,
- the type of alarm,
- the threshold and hysteresis setting ,
- authorization of the adjustment by the front face,
- the type of security (positive or negative),
- the setting of activation and deactivation delay.

4.1) Alarm assignment

For 2 channels device (BGL144-2), it is possible to assign alarm to channel 1, channel 2 or both channels.

If the assignment is on both channels, the alarm is an OR operation between channel 1 alarm and channel 2 alarm. The LED's in front face shows the alarm state.

4.2) Alarm type

The alarm may be activated for a sensor breaking detection and/or a threshold detection.

4.3) Threshold detection

This detection is define by the type of threshold (High or Low), the threshold value and hysteresis value.

4.4) Security

There are two security possibilities:

- The positive security: The relay is ON when alarm is activated and OFF when there is no alarm.
- The negative security: The relay is OFF when alarm is activated and ON when there is no alarm.

4.5) Delays

- Activation delay : is the delay between the alarm detection and the relay activation.
- Deactivation delay : is the delay between the alarm disappears and the relaxation of the relay.

5) Special function

This section is composed of:

- Measure filtering. Choose the damping time apply to the channel measure.
- Display mode:
 - Ramp / Bar mode : The LED's are lit from the first one to the actual position.
 - Dot mode: Only the LED indicating the actual position is lit.
- Front face configuration lock. This function allows you to prevent access to the configuration with the front face buttons.

OFFSET

Sometimes it can be useful to offset the measure value. (to follow sensor aging for example,...)

To change the measure value, you must:

- Being in measure mode,
- Press on "+" or "-" keys to enter in offset function,
- The display change and become:

13.05 V	measured value with offset,
OFFSET 0.06	Offset function and offset value.

- Use the "+" and "-" keys to set the offset value,
- Press the "ENTER" key to memorized the new offset value.
- The first setting is the offset of channel 1. The offset of channel 2 is made after the validation by "ENTER".

Note:

The offset stays active, even after a power off.

To cancel the offset, enter in offset mode, set the offset value to zero and validate it.

In the offset mode, if no action is made within 2 minutes, the device returns in measure mode without taking account of the new setting.

FIRMWARE update

To access to the firmware update function, you must first open an HyperTerminal session on a PC, connect the device to the PC with the RS232 link cable and then power on the device.

The following character is send to the terminal:

> <————— The device sends this character then it waits the « F » key during 0.5 s.

If the user has pressed the « F » key in the allowed time, the following message is displayed in the HyperTerminal windows:

```
FIRMWARE LOADER Rev3  
READY TO TRANSFER...
```

The device is now in file waiting mode, This file is provided by LOREME. This file contain the firmware code in intel HEX format. Selected the « Transfer », « Send a text file... » in the HyperTerminal menu
Select the directory and the file, click on « OPEN ».

The HyperTerminal program begins to send the file to the device.

```
FIRMWARE LOADER Rev3  
READY TO TRANSFER...
```

***** The star characters appears to show the progress of the uploading.

At the end, the message « **PROGRAMMING OK !** » is display if no error occurs. If not, several messages are display:

- **SERIAL COM ERROR !** Error during receipt.
- **SERIAL TIMEOUT !** Waiting time of receipt elapsed.
- **PROGRAMMING FAILED !** Programming error in the internal flash memory..

Attention:

*If an error occurs during the programming process, It is necessary to start again the whole procedure.
A bad programming leads to incorrect operation in the device.*

EMC Consideration

1) Introduction

To meet its policy concerning EMC, based on the Community directives **2014/30/EU** & **2014/35/EU**, the LOREME company takes into account the standards relative to this directives from the very start of the conception of each product.

The set of tests performed on the devices, designed to work in an industrial environment, are made in accordance with **IEC 61000-6-4** and **IEC 61000-6-2** standards in order to establish the EU declaration of conformity. The devices being in certain typical configurations during the tests, it is impossible to guarantee the results in every possible configurations. To ensure optimum operation of each device, it would be judicious to comply with several recommendations of use.

2) Recommendations of use

2.1) General remarks

- Comply with the recommendations of assembly indicated in the technical sheet (direction of assembly, spacing between the devices, ...).
- Comply with the recommendations of use indicated in the technical sheet (temperature range, protection index).
- Avoid dust and excessive humidity, corrosive gas, considerable sources of heat.
- Avoid disturbed environments and disruptive phenomena or elements.
- If possible, group together the instrumentation devices in a zone separated from the power and relay circuits.
- Avoid the direct proximity with considerable power distance switches, contactors, relays, thyristor power groups, ...
- Do not get closer within fifty centimeters of a device with a transmitter (walkie-talkie) of a power of 5 W, because the latter can create a field with an intensity higher than 10 V/M for a distance fewer than 50 cm.

2.2) Power supply

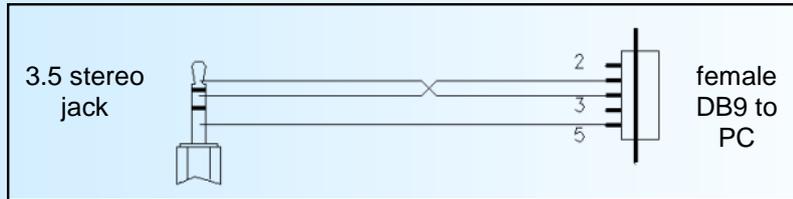
- Comply with the features indicated in the technical sheet (power supply voltage, frequency, allowance of the values, stability, variations ...).
- It is better that the power supply should come from a system with section switches equipped with fuses for the instrumentation element and that the power supply line be the most direct possible from the section switch.
- Avoid using this power supply for the control of relays, of contactors, of electrogates, ...
- If the switching of thyristor statical groups, of engines, of speed variator, ... causes strong interferences on the power supply circuit, it would be necessary to put an insulation transformer especially intended for instrumentation linking the screen to earth.
- It is also important that the installation should have a good earth system and it is better that the voltage in relation to the neutral should not exceed 1V, and the resistance be inferior to 6 ohms.
- If the installation is near high frequency generators or installations of arc welding, it is better to put suitable section filters.

2.3) Inputs / Outputs

- In harsh conditions, it is advisable to use sheathed and twisted cables whose ground braid will be linked to the earth at a single point.
- It is advisable to separate the input / output lines from the power supply lines in order to avoid the coupling phenomena.
- It is also advisable to limit the lengths of data cables as much as possible.

Wirings

PC - DEVICE LINK



DIAGRAMS OF CONNECTIONS

