

PROGRAMMABLE INDICATOR



CONFIGURATION AND UTILIZATION



**INL50L, L/S, L/I, L5
95000L, L/S, L/I, L5
INL50LI8**



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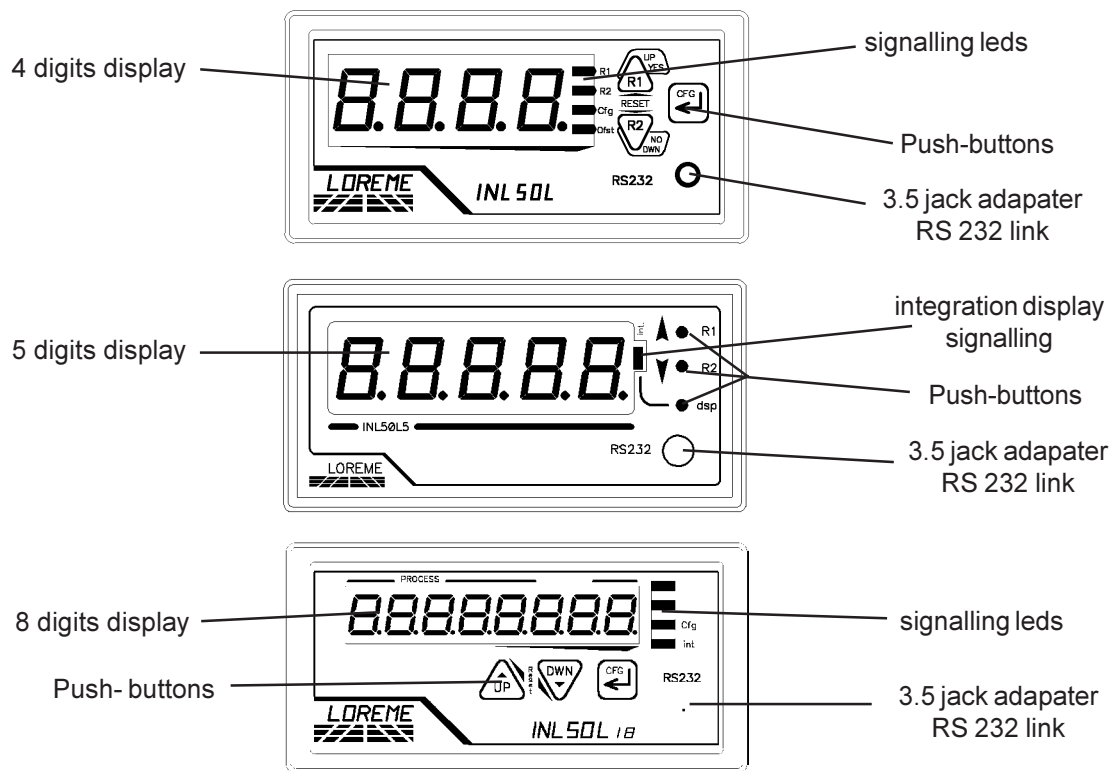
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The purpose of this handbook is to allow you to become familiar with the different functions of the device. It's necessary to notice the differences between all the models.

95000L: Basic version without relay, 4 digits display.
 95000L/S: + 1 analogical output (recopy).
 95000L/I: + integrator.
 95000L5: Basic version without relay, 5 digits display.

INL50L: Basic version with 2 relays, 4 digits display.
 INL50L/S: + 1 analogical output (recopy).
 INL50L/I: + integrator.
 INL50L5: Basic version with 2 relays, 5 digits display.
 INL50L18: Basic version with 2 relays, 8 digits display, integrator.

USING INTERFACE



The device front panel is composed by:

- a 4 digits display, INL50L and 95000L version, or 5 digits, INL50L5 and 95000L5 version, or 8 digits, INL50L18 version, for measure display.




- 4 leds (except L5 version with 1 led):

- R1, alarm 1,
- R2, alarm 2,
- C, RS232 configuration,
- Int, integration value display (integrated, totalised)

• Int integration value display (L5).

- a 3,5 jack adapter for RS232 link,

- 3 keys:

-  Selection of display value, integrated/totalised value or instantaneous value. (integrator version).
-  Alarm 1 threshold setup access in measure mode. Threshold value incrementation in setup mode (alarms activated and setup access authorized).
-  Alarm 2 threshold setup access in measure mode. Threshold value decrementation in setup mode (alarms activated and setup access authorized).

L5 version:

- **R1** Alarm 1 threshold setup access in measure mode. Threshold value incrementation in setup mode (alarms activated and setup access authorized).
- **R2** Alarm 2 threshold setup access in measure mode. Threshold value incrementation in setup mode (alarms activated and setup access authorized).
- **dsp** Selection of display value, integrated/totalised value or instantaneous value. (integrator version).

L/I version:

- **R1+ R2** Integrated value resetting (integrator option validated, reset access authorized in the special functions).

RS232 Configuration



The whole of the configuration parameters can be visualized and modified with any system emulating a terminal and equipped with RS232 link. The dialog and configuration parts being resident in device memory, no software or specific interface is necessary for their configuration. Two systems of terminal emulation are presented, the PSION WorkAbout and the PC. Different procedures are enumerated below. The link is freely supplied on simple request.

PSION Workabout: (portable terminal)

To start up the PSION push the "ON" key.

At the presentation, push the "MENU" key.

Select "SYSTEME SCREEN" mode and validate by "ENTER".

Icons display: **DATA CALC SHEET PROGRAM COMMS**



Select icon "COMMS" and validate by "ENTER", on display, a cursor is flashing.

The PSION is now in terminal mode, and it's necessary to check his parameters.

For this, press the "MENU" key, then go to item "Spec", "Port" and validate with "ENTER".

Here, parameters should be: - Port: A - Baud rate: 9600

Then, go to menu "Parameters..." and validate by "Tab"

Here, parameters should be: - Data bits: 8 - Stop bits: 1
- Parity: None - Ignore parity: Yes

Validate now by pushing "ENTER" twice.

Press again "MENU", then select "Handshakes" and validate with "ENTER".

Here, put all parameters in "Off" state.

The terminal is now totally configured. plug the terminal to the device with RS232 link.

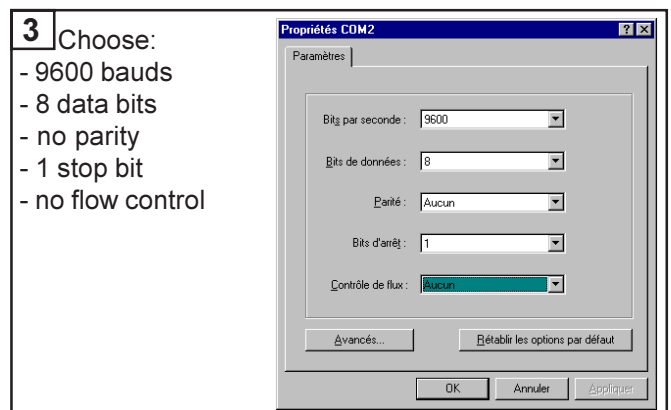
The measure is displayed and, to configure, push "C" on keyboard.

To quit terminal mode and switch off PSION, push the "OFF" key. When you start the PSION again, it start automatically and directly in terminal mode without re-start configuration.

PC with WINDOWS:

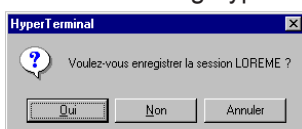
To start up terminal program:

- 1 - Clic on button "START"
- 2 - Tick off "Programs \ Accessories \ Communication \ Hyper Terminal"
- 3 - Clic on "Hypertrm.exe"



- 4** PC is now in terminal mode, connect to device by plugging the RS232 link cable. Measure is now displayed and to access configuration, press "C" key .

- 5** When leaving HyperTerminal, the following window will appear.



By accepting the recording of the session, terminal mode will be able to be started again without using this procedure.



Thus, the short cut LOREME.ht will permit to communicate with all LOREME devices.

Note: to modify 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.

VISUALIZATION:

When it starts up, the device is in measure mode.

Two datas are send to terminal:

10 mA	Value of the input measure,
11.99 mA	Value of the output result if present (/S option).

CONFIGURATION:

This manual recapitulates a detailed account of several configuration possibilities: input, range display, special functions, output, relay, password. To access configuration mode, type on "**C**" key.

1) Method:

During configuration, several question types are asked. For each of them, several answers are possible. Here is a description of each of them:

1.1) Menu selection:

Example: INPUT
Y - N

The choice is done by typing on "**Y**" or "**N**" keys.

This choice allows access to different configuration menus.

1.2) Parameter selection:

Example: VOLTAGE or VOLTAGE
(Y-N) YES (Y-N) NO

Previous choice = YES: - push on "**Y**" => Validation of choice = YES,
- push on "←" => Validation of choice = YES,
- push on "**N**" => Change of choice = NO.

Previous choice = NO: - push on "**N**" => Validation of choice = NO,
- push on "←" => Validation of choice = NO,
- push on "**Y**" => Change of choice = YES.

Choices are made by pushing on "**Y**" or "**N**" keys, and validation by pushing on "←" (PC) / "**EXE**" (PSION) when the answer "**Y**" or "**N**" is displayed. Pushing on the key "←" / "**EXE**" without modification allows validate previous answer.

1.3) Value acquisition:

Example: LOW SCALE
4 mA

Two possibilities:

- The validation without modification by pushing on "←" / "**EXE**",
- The keyboard value modification (simultaneous display), then the validation by "←" / "**EXE**".

Note concerning the value acquisition:

- It is possible, when a mistake is made during a value acquisition, before validating it, to go back pressing "←" (PC) "**DEL**" (PSION), which re-displays the message without taking notice of the wrong value.
- In configuration mode, if there is no action, the device goes back in operating mode after a two minutes delay without taking notice of the modifications made before.
- In configuration mode, if you want return to measure mode without taking notice of the modifications made before, you just have to press "**ESC**" (PC) or "**SHIFT + DEL**" (PSION) key.

2) Input:

Input possibilities are:

- frequency (up to 35 KHz),
- voltage (+/- 10 V or +/- 100 V),
- current (+/- 20 mA).

For each input type you must parameter:

- high scale,
- low scale.

Particularity:

- Potentiometer:
- Configure voltage input (10V):
 - low scale: 0 V,
 - high scale: 5 V.

Move potentiometer at start and end of the range, notice each value.

- Modify voltage input (10 V):
 - low scale: start range value,
 - high scale: end range value.

See input / output wiring for potentiometer wiring.

3) Display range:

The range converts the input signal to a physical quantity. Thus making the measure interpreting easier.

Ex: Input 4-20 mA / Range 0-1000 kg
 → Input = 12 mA, indication = 500 kg

For the range configuration, you need:

- the unit,
- the low scale,
- the high scale,
- the decimals number,
- the filter,
- the limitation.

Unit of the display range is facultative and allow to interpret the real size on the terminal. It is limited to 4 characters.

Decimal number correspond to the number of digit displayed after the decimal point. This number is limited by input type, display scale range and display resolution.

Display filter allows to attenuate display instability if the measured value is disturbed. Factory filter value is two.

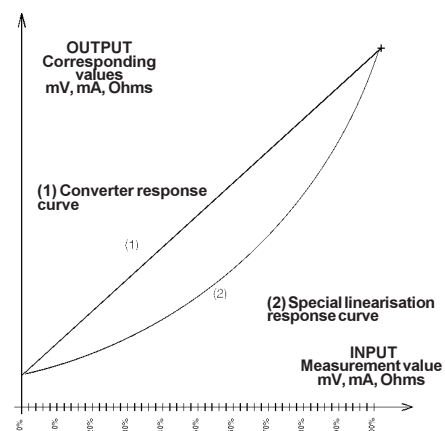
Display limitation allows to limit measure indication to the configured scales. A scale overflow will be indicated by the display high scale, an underflow by the display low scale .

4) Special functions:

Square root: this function executes a square root on the measure percentage of the input range and is reported on range-display and analog output.

Special linearization: when this function is chosen, it is directly validated, but the linearization configuration isn't modified. To modify the special linearization, it is necessary to validate by YES the configuration suggest. When the special linearization is enabled, the converter will use the curve that you program (2).

To have a special linearization curve (2), it's necessary to put for each curve point the physical input value and the corresponding range value (max.: 32 signed points including 0 % and 100 % of the input). So, for each measure in the input range (**device can't use the linearization function out of range**), the device will make the corresponding to the linearized value.



The **polynomial** fonction allows a third degree polynomial calculation. It is done on the percentage of the measure proportionnally to the input range. The formulas is $Dx^3 + Cx^2 + Bx + A$, in witch x is the measure and A, B, C and D are four configurable coefficients.

Integrator (L/I version): this function allows to integrate and add up, in the time, a measure (mA, V) corresponding to a physical quantity (stream flow, energy). We obtain an integration by hour of the instantaneous measure interpreted by the display range.

5) Analogical output (/S version):

The configuration of the analogical output is composed by 2 rubrics:

- Output type:
 - current output (mA),
 - voltage output (V).

For each output type, the choice of:

- low scale,
- high scale.

- Output parameters:
 - response time,
 - limitation.

The response time is adjustable from 200 ms to 60 s. It allows to filter the output signal when the measure is disturbed.

The limitation allows, for all input signal values, to bound the output signal swing to the configured output scales.

6) Relays (INL50L):

The 2 relays can be used in two different ways.

- alarm,
- counting.

6.1) Alarm:

Relay alarm configuration is composed of 4 parameters:

- detection type, high or low threshold, with threshold and hysteresis acquisition,
- security,
- delay,
- adjustment.

The **threshold detection** works in this way:

- **high threshold** detection:
 - . the alarm is activated when the measure goes above the threshold,
 - . the alarm is removed when the measure goes below the threshold less the hysteresis.
- **low threshold** detection:
 - . the alarm is activated when the measure goes below the threshold,
 - . the alarm is deactivated when the measure goes above the threshold more the hysteresis.

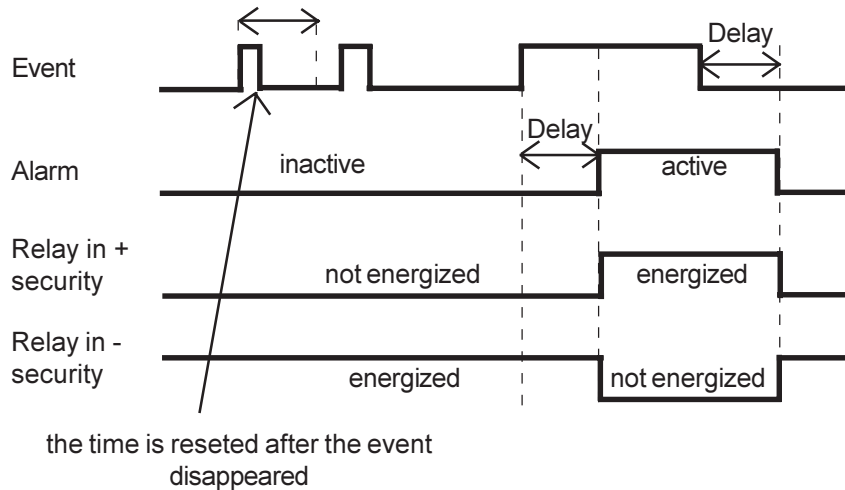
The security works in this way:

- in positive security, the relay is energized when the alarm is active,
- in negative security, the relay is energized when the alarm is inactive.

The delay value (in second), determines the time above which the alarm changes his state after event detection. The delay is active at the appearance and disappearance of the event.

When the alarm is used in threshold detection, it's possible to access the **threshold adjustment** of the alarm by the front face **push-buttons**. This possibility can be deactivate, making the front face adjustment inaccessible, only the visualization is then possible.

Alarms and relays process:



6.2) Counting (integrator version only):

To configure a relay in counting, the impulsion weight value must be input. So each impuls given by the relay (200 ms duration) corresponds to a quantity equal to the impulsion weight value.

7) Password:

It's possible to protect configuration with a password (specify it on order). For configuration access, when option is on, device will ask to enter the password. The default factory password is 177B and it is possible to modify it at the end of configuration.

MEASURE OFFSET:

Sometimes, it may be interesting to modify measure by a simple terminal keyboard intervention. It can be used in many situations:

- Sensor's degradation,
- to calibrate the input with magnifying effect to obtain a better accuracy in the measure window.

To shift the measure, it is necessary:

- to be in measure mode,
- type on "+" or "-" to access at the function,
- on terminal display becomes:
 - 7.55 mA** measure value with offset,
 - OFFSET 10** offset function, offset value.
- use keys "+" and "-" to adjust offset, measure is directly modified.
- type on "ENTER" to memorize offset.

When device is not supplied or in configuration mode, offset stay active. To reset offset, it is necessary to start "OFFSET" function, put this value to zero by "+" and "-" keys, then validate by "ENTER". In offset control mode, when there is no action on "+", "-" or "ENTER" keys during 20 s, the device exits this mode without keeping the adjusted offset.

Attention, the offset has no effect on the measure when the converter is in frequency mode !!!

EMC CONSIDERATION

1) Introduction:

In order to satisfy its policy as regards EMC, based on the Community directive 89/336/CE, the LOREME company takes into account the standards relative to this directive from the very start of the conception of each product.

As the devices are devised to work in industrial environments, the various tests are carried out in the sight of the EN 50081-2 and EN 50082-2 standards, in order to make out a statement of conformity.

As the devices lie in certain typical configurations during the tests, it is not possible to secure the outcomes in any possible configuration. To ensure the best functioning 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 centimetres 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.

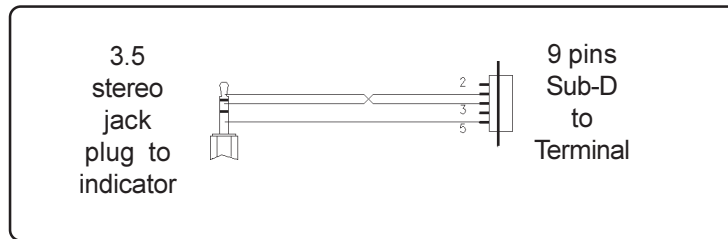
2.2) Power supply:

- 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.

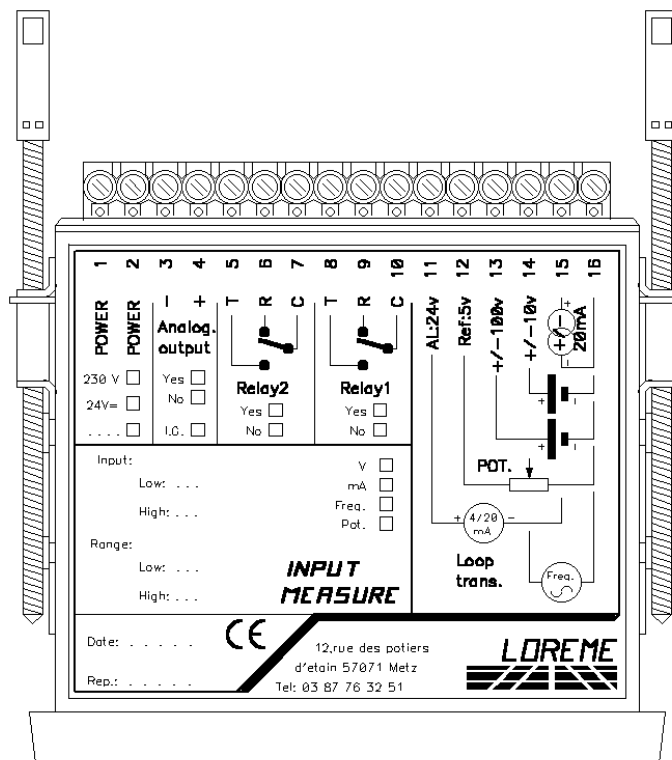
2.3) Inputs / Outputs:

- 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.

INDICATOR-TERMINAL LINK



WIRING DIAGRAM



mA input
10 V input, frequency
100 V input

terminal 15 (+), terminal 16 (-)
terminal 14 (+), terminal 16 (-)
terminal 13 (+), terminal 16 (-)

Potentiometer input
Sensor power supply:

terminal 12 (Ref.), terminal 14 (+), terminal 16 (-)
terminal 11 (+), terminal 15(-)

Relay 1
Relay 2

terminal 10 (C), terminal 9 (R), terminal 8 (T)
terminal 7 (C), terminal 6 (R), terminal 5 (T)

Analogical output

terminal 4 (+), terminal 3 (-)

Power supply

terminal 1 (~) et terminal 2 (~)