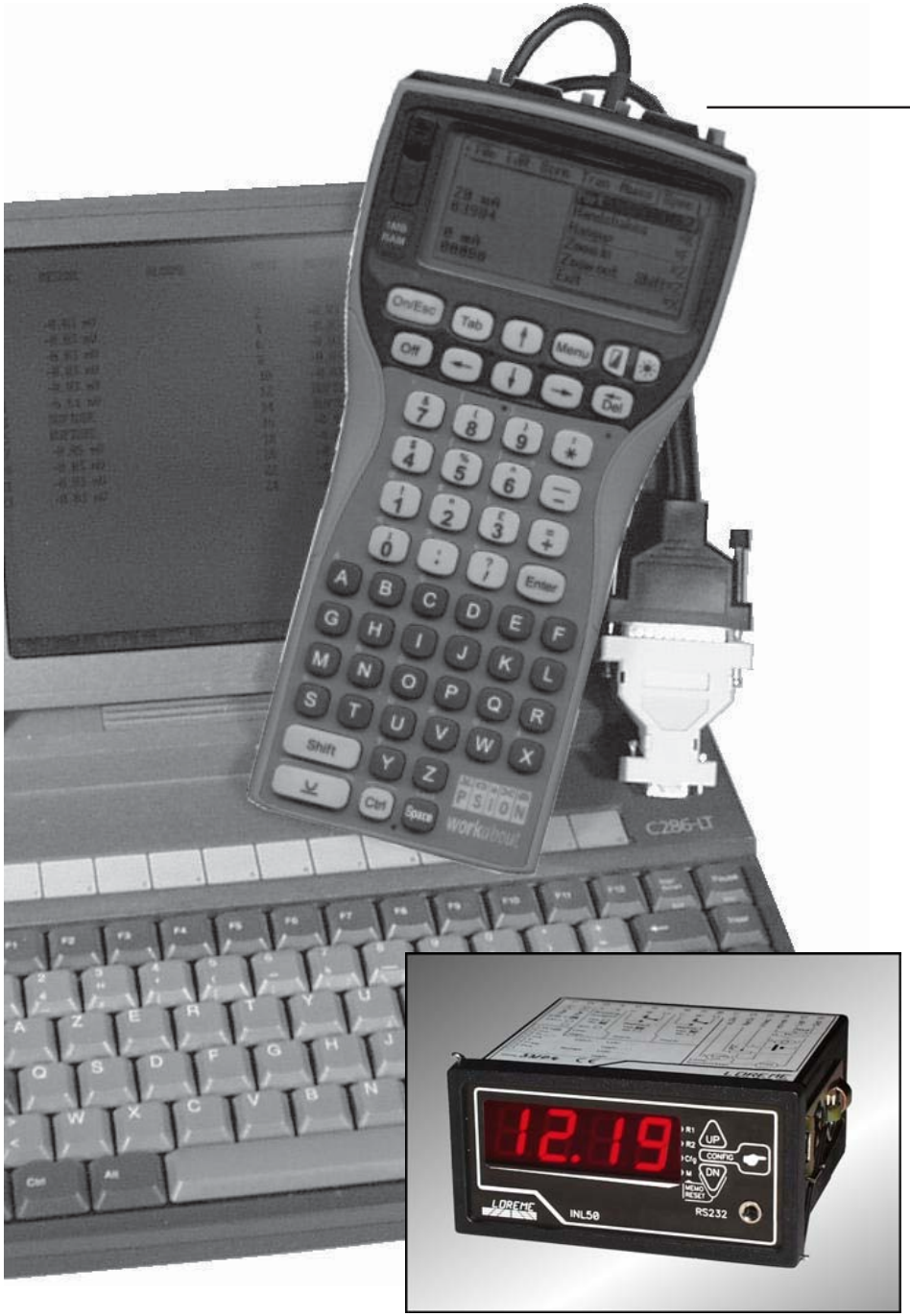

PROGRAMMABLE

NUMERICAL INDICATOR

INL 50

95000

CONFIGURATION HANDBOOK

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DIALOGUE - TERMINAL MODE

Numeric devices can converse with all terminal emulation mode systems. As the dialogue and configuration part are in device's memory, no software or specific interface are necessary for their configuration.
Two terminal emulation mode systems are presented: the PSION and the PC. Differents procedures are enumerated below.

1) PSION Workabout:

To start up the PSION push on the **"ON"** key.
At the presentation, push on 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 flashing. The **PSION** is in terminal mode. Plug in "RS232" on PC. The measure is displayed and, to configure, push **"C"** on keyboard.
To quit terminal mode and switch off PSION, push on **"OFF"** key. When you re-start the **PSION** in terminal mode, it start automaticaly and directely in terminal mode without re-start configuration.

2) PC with DOS:

The terminal emulation mode software with DOS **"IBM®-PC KERMIT-MS V2.26"** is available at simple request. After the PC has booted, type **"a: K"** then press **"ENTER"**. The PC is in terminal mode and uses COM port 1.
If you want to use the second serial communication port (COM2), type:

"A:KERMIT" and **"ENTER"** to start program,
"SET PORT 2" and **"ENTER"** to select **COM2**,
"SET BAUD 9600" and **"ENTER"** to select speed,
"CONNECT" and **"ENTER"**, to enter in terminal mode.

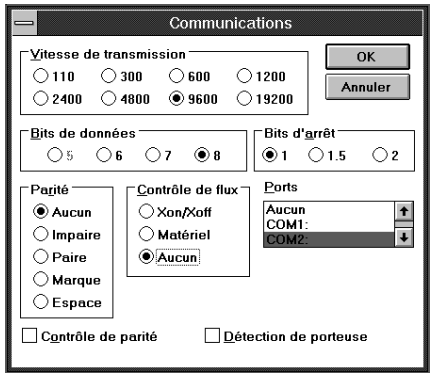
The PC is now in terminal mode and may be connected to the device by plugging in the RS232 link cable. Measure is displayed and configuration's acces is allowed by a press on **"C"** key.

To quit kermit, press **"CTRL-$"** then press on **"C"** key. When the message KERMIT-MS appears, type **"QUIT"** to return to MS-DOS commands.

3) PC with WINDOWS 3.11:

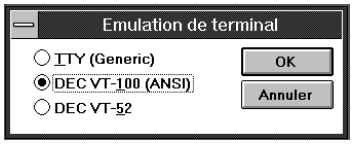
Start **WINDOWS** and in "**ACCESSOIRES**" group, double-click on 

icon wich get access to terminal mode.



In "**PARAMETRES**" menubar, click on "**COMMUNICATION**" sub-menu. We access to the following windows. Configure communication parameters, 9600 bauds, no parity, 8 data bits, 1 stop bit, no flow control and validate.

Begin terminal emulation by click on "**PARAMETRES**", then on "**EMULATION TERMINAL**". The following board is displayed.



Choose terminal mode **DEC-VT-100(ANSI)** and validate. The PC is in terminal mode, connect it to device by plugging the RS232 link cable. Measure is now displayed and to access at configuration, press on **"C"** key.

4) PC with WINDOWS 95/98:

To start up terminal program:

1 - Clique on button **"START"**,

2 - Tick off **"PROGRAMS"**, **"ACCESSOIRES"**, and **"HYPER TERMINAL"**,

3 - Click twice on 
Hypertrm.exe

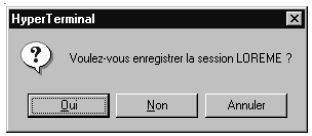
The following window is displayed. Enter a name for a new connection and validate, the hereunder window will appear

Choose a communication port and validate.

The following window is displayed.

Configure communication parameters, 9600 bauds, no parity, 8 data bits, 1 stop bit, no flow control and validate.

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



When quitting HyperTerminal will be diplayed the following window. To dialog with all LOREME devices without re-start all the method, click on **"OK"**


LOREME.ht

So, by the way of LOREME.ht icon or by its short cut , it will be possible to communicate with all LOREME devices.

5) Visualization:

When switching on, device is automatically put in measure mode.
2 informations are avaibles on terminal:

10 mV	Input measure value
11.99 mA	Output result value (INL50/S - 95000/S)

To access configuration, push on **"C"** key on keyboard and follow configuration procedure.

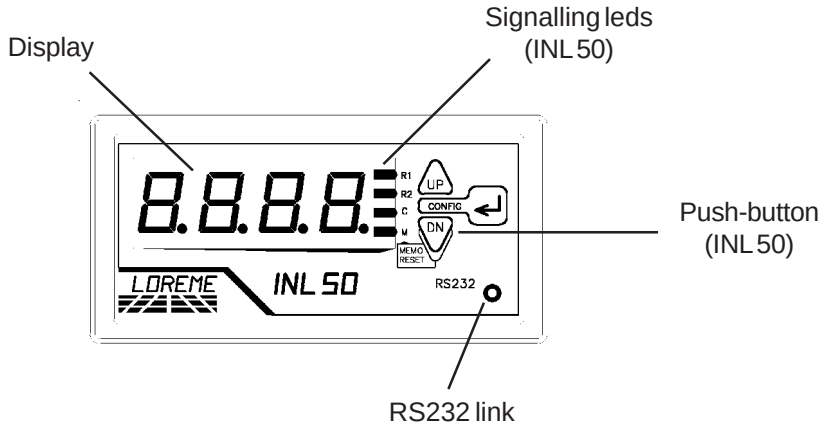
DEVICE PRESENTATION

The purpose of this handbook is to allow to master different function of the device.

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

95000: universal input,
95000/S: universal input, 1 analog output,
INL 50: universal input, 2 alarms relays,
INL 50/S: universal input, 2 alarms relays, 1 analog output.

USER INTERFACE



The front side of the device is composed of:

- 1 jack 3.5 plug for RS 232 link,
- 1 four digits display (10000 pts) for measure visualization,
- 4 signalling leds (INL 50):
  - ■ R1, alarm relay 1,
  - ■ R2, alarm relay 2,
  - ■ C, push-button or RS 232 configuration,
  - ■ M, "MAXI VALUE MEMO" function activated.
- 3 push-button (INL 50):
  - CONFIG access to adjustment of alarms thresholds (alarm activated and adjustment validated)
  - UP alarm threshold adjustment touch (alarm threshold adjustment mode)
  - DN / MEMO RESET alarm threshold adjustment touch (alarm threshold adjustment mode) or memorized maxi value RESET (measure mode and "MAXI VALUE MEMO" function activated).

CONFIGURATION

This manual recapitulates a detailed account of several configuration possibilities: language, input, range-display, relay 1, relay 2, analog output, special functions. To access configuration mode, type on **"C"** key.

1) Method:

At configuration, several question types are asked. For each of them, several answers are possibles. Here is the 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 (Y-N) YES or VOLTAGE (Y-N) NO

Previous choice = YES:	- push on **"Y"**	=>	validation, choice = YES,
	- push on **"Enter"**	=>	validation, choice = YES,
	- push on **"N"**	=>	change, choice = NO.
Previous choice = NO:	- push on **"N"**	=>	validation, choice = NO,
	- push on **"Enter"**	=>	validation, choice = NO,
	- push on **"Y"**	=>	change, choice = YES.

Choices are made by pushing on **"Y"** or **"N"** keys, and validation by pushing on displayed answer (**"Y"** for YES and **"N"** for NOT) or by **"Enter"**. Pushing on **"Enter"** key without modification allows to validate previous answer.

1.3) Value acquisition:

Example: LOW SCALE
4 mA
Two possibilities:
- The validation without modification by pushing on **"Enter"**,
- The modification with simultaneous display followed by validation with **"Enter"** key.

It is possible, when a mistake is made during a value acquisition, before validating it, to go back by pressing on "**DEL**" key. This re-displays the message without taking notice of the mistake.

1.4) Remarks:

- In configuration mode, if there is no action during 2 minutes, device goes back in operating mode without taking notice of the modifications made before.

- In configuration mode, if you want to shift to measure mode without taking notice of modifications made before, just press **"ESC"** key.

2) Language:

The language possibilities are:

- english,
- french.

3) Input:

The input possibilities are:

- Voltage (mV)
- Voltage (V),
- Current (mA),
- Resistance 5Ohms),
- Frequency (Hz),
- Pt100 (°C),
- Thermocouple (°C).

For each input type, you must choose:

- low scale,
- high scale.

Particularity:

- Thermocouple:

  Choice of thermocouple type: B, E, J, K, R, S, T.

  Choice of compensation type: internal or external + compensation value.

  Choose **internal compensation** when the thermocouple is extended up to device with a compensation cable.
  Choose **external compensation** when the thermocouple is not extended up to device with a compensation cable, but up to a compensation box where temperature will be known and stabilized. This is this value of temperature that will be typed as the external compensation value.

- Potentiometer:

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

  Move potentiometer at the start and at the end of range, measure values.

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

  See wiring diagram for potentiometer cabling.

- Sensor power supply:

  To supply a converter in 2 wires technical and measure the current in the loop, it's necessary to configure device in 4-20 mA current input.
  See wiring diagram for sensor power supply and current input cabling.

4) Range-display:

The range converts the input signal to a physical quantity. This one facilitates the measure interpreting.

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

To configurate range , you must to parameter:

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

The range-display **unit** is facultative. It only allows to interpret the real value on terminal. It's limited to 4 characters.

The number of decimals is the digit number displayed after the decimal point. This number is limited by input type, range-display scale and device resolution.

The display filter allows to reduce display instability when measured value is disturbing. Filter value by default is null.

The limitation allows to indicate an overstepping high or low of display range superior to 1 %. A high overstepping is indicated by **"Hi"** display message and a low overstepping by **"Lo"** display message.

5) Relay 1 and 2:

The 2 relays configuration is the same, it is composed of 2 rubrics:

- Detection type:
  - breaking detection,
  - threshold detection.

The breaking detection activates alarm on sensor breaking or on measure range overflow.

The threshold detection activates alarm on threshold overstepping. It is necessary to choose threshold type (high or low), threshold and hysteresis values.

The two **detections types** can be chosen simultaneously.

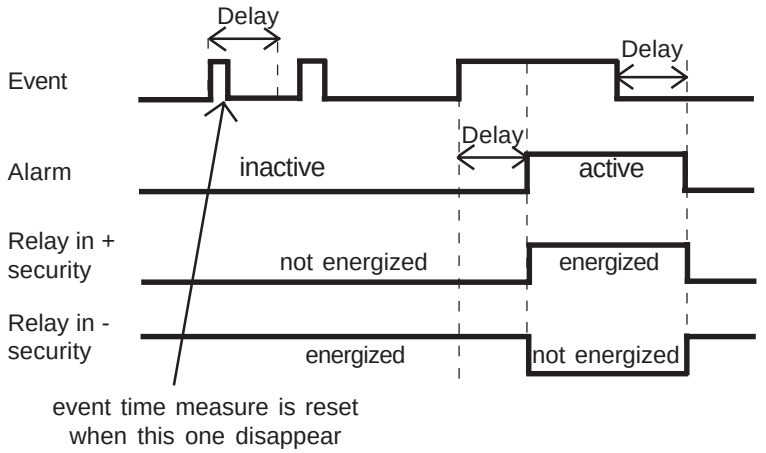
The **threshold detection** works in this way:
- **high threshold** detection:
  .alarm is activated when measure goes above threshold,
  .alarm is removed when measure goes below threshold less hysteresis.
- **low threshold** detection:
  .alarm is activated when measure goes below threshold,
  .alarm is removed when measure goes above threshold more hysteresis.

- Relay parameter:
  - adjustment,
  - security,
  - delay.

When alarm is using in threshold detection, it's possible to access at the **threshold adjustment** by front side push button. This possibility can be desactivated on RS232 configuration, only visualization become possible.

The security works in this way:
- in positive security, relay is energized when alarm is active, "works contact" is closed on alarm, opened out of alarm, "back contact" is opened on alarm, closed out of alarm.
- in negative security, relay is energized when alarm is inactive, "works contact" is opened on alarm, closed out of alarm, "back contact" is closed on alarm, opened out of alarm.

The delay value, expressed in seconds, determines the time above which alarm changes his state after detection of event. The delay works when alarme is activated and when alarme is removed.



6) <u>Analogical output:</u>
Analogical ouput configuration is composed of 2 rubrics:

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

  For each output type, you must choose:
    - low scale,
    - high scale.

- Output parameters:
  - reply value,
  - response time,
  - limitation.

  The reply value allows to set the output on a known state when there is a sensor breaking or a measure range overflow. This value will be transfered to analogical output.

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

  The limitation allows, for all input signal values, to peak clip the output signal swing at scale configuration. Only reply value goes beyond this function.

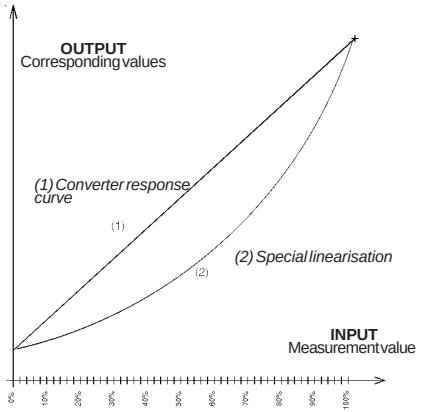
7) Special functions:
Device disposes of severals functions says "special" allowing to personnalize device funtionnement.

The **square root** function executes a square root on the input range percentage and is reported on range-display and analog output.

The **special linearization** function allows to personnalize a response curve by the configuration of correspondance points between measured input signal and display.
When this function is choosed, it is directly validated, but the linearization is not modified. To modify special linearization, it is necessary to validate by YES the configuration suggest.

When **special linearization** is enabled, device uses linearization curve corresponding to configurated points (2).

To personnalize a response curve (2), it's necessary to set for each curve point the physical input value and the corresponding range value (maxi 26 points including 0 % and 100 % input). So, for each measured point, device will make corresponding of linearized value.



The **maxi value memo** function allows to the device to memorize the higher measure and to stay in this state (input, output, alarms) until a measure is higher than memorized value or a push on **"memo reset"** key is detected.

OFFSET

Sometimes, it may be interesting to modify measure by a simple terminal keyboard intervention. It can be used in many situations as a sensor's degradation or 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,
- the display on terminal become:
  100.5 DC measure value with offset,
  OFFSET 10 offset function, offset value.
- use keys **"+"** and **"-"** to adjust offset, measure is directly modify.
- type on **"ENTER"** to memorize offset.

When the device is not supplyed or in configuration, offset stay active.
To reset offset, it is necessary to start **"OFFSET"** function, put this value to zero by keys **"+"** and **"-"**, then validate by **"ENTER"**.
In offset control mode, when there is no action on keys **"+"**, **"-"** or **"ENTER"** during 15 s, device exits of this mode without to keep adjusted offset.

EMC CONSIDERATION

1) Introduction
In order to insure its policy concerning EMC, based on the European directive 89/336/CE, LOREME takes into account all the standards relative to this directive as soon as the design of each device starts.

All the tests made on our devices, designed to work in industrial plants, have been made regarding the EN 50081-2 and EN 50082-2 standards in order to edit a conformity certificate.

It is difficult to guarantee all the results concerning EMC because tests are made in a standard and typical configuration. Results may vary when a change of configuration occurs.
In order to be sure to use all the capabilities of the device, it will be necessary to respect a few rules concerning its installation.

2) Installation and utilization rules
2.1) General remarks
- Installation should be made with respect to the informations given in technical documents (installation, spacing between each device ...).
- Utilization conditions should be in accordance with specifications of the transmitter (temperature range, protection level) specified in technical datasheet. Dust, excessive humidity, corrosives atmospheres or important heat sources should be prohibited in order to insure an optimum utilization.
- Noisy environment or elements creating perturbations should be avoided. If it is possible, it will be better to install instrumentation devices separately from

hi-power or commutation devices.
Do not install measurement devices close to hi-power relays, thyristor groups, contactors or all electromagnetic noise generators.
Do not use a portable transmitter (walkie-talkie) at less than 50 cm of the device. A 5 W transmitter may generate a field which intensity may be more than 10 V/m at a distance near of 50 cm.

2.2) Power supply

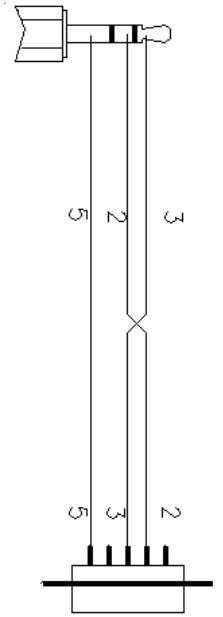
- At first, it's important to install the equipment with respect to the technical specifications given in the device's datasheet (supply voltage, frequency, tolerance of values, stability, variations ...).
- The power supply of the device should be issued from a supply system using section switches and fuses made for instrumentation devices, and the supply line should be as direct as possible from section switch.
Don't use this power supply for relays, contactors or valves command.
- An isolating transformer, with its screen shorted to ground may be necessary if the supply circuit is made noisy with commutation of thyristors, relays, motors, speed variators ...
- It's important that the installation hast to be connected to ground.
The voltage between neutral and earth must be less than 1 V and the resistance must be less than 6 Ohms.
- If the equipment has been installed near hi-frequency generators or arc welding installations, it may be useful to install adequat filters on the mains supply.

2.3) Inputs / Outputs

- In a noisy environment, it will be better to use shielded and twisted wires. The ground connection will be made at a single end of the wire.
- I/O lines should be well separated from supply wires in order to avoid coupling between these wires.
- Data wires length should be as short as possible.

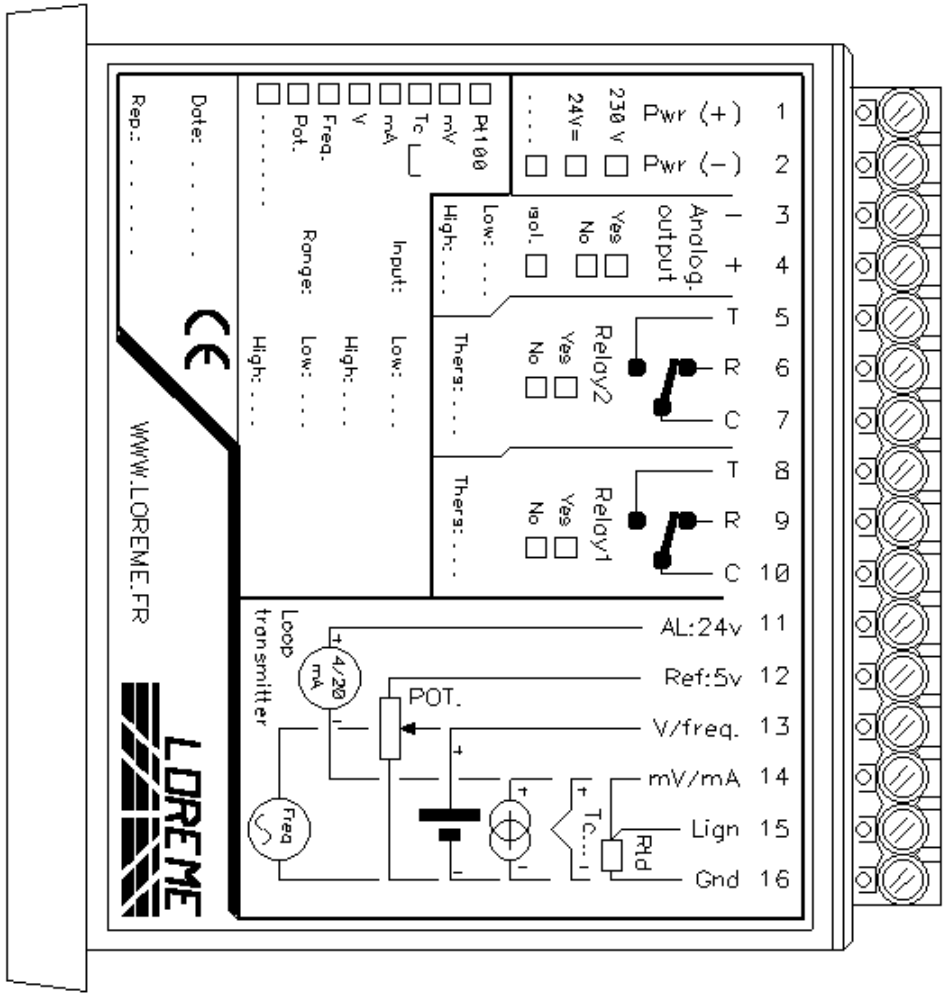
TERMINAL - DEVICE LINK

3.5 stereo jack plug to
INL 50, 95000



9 pins Sub-D to PC or
PSION WorkAbout

DIAGRAMS OF WIRING



Power supply:		terminal 1
		terminal 2
Output:	-	terminal 3
	+	terminal 4
Relay 2:	Travail	terminal 5
	Repos	terminal 6
	Commun	terminal 7
Relay 1:	Travail	terminal 8
	Repos	terminal 9
	Commun	terminal 10
Sensor power supply:		terminal 11
Potentiometer input:		terminal 12
Input:		terminal 13
Input:		terminal 14
Input:		terminal 15
Input ground:		terminal 16

<u>Input wiring</u>

Input V, Hz	terminal 13 (+), terminal 16 (-)
Input mV, mA, Tc:	terminal 14 (+), terminal 16 (-)
Input Ohms, Pt100	terminal 14/15 (+), terminal 16 (-)
Potentiometer input:	terminal 12 (réf), terminal 13 (+), terminal 16 (-)
Sensor power supply input:	terminal 11 (+), terminal 14 (-)