

PROGRAMMABLE NUMERIC CONVERTER

**CNL48
CNL48/1**

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. Different procedures are enumerated below.

1) PSION serie 2:

First of all manipulation, plug in "COMMS LINK" on the PSION. To start up the PSION, push on the "ON" key.

The PSION displays this menu:

```
RECH SAUV AGENDA
CALC PROG EFFACE
```

Push on the "C" key until the menu "COMMS", and validate with "EXE".

The PSION displays this menu:

```
TRANSMIT RECEIVE
SETUP TERM AUTO
```

Push on the "T" key until the menu "TERM", and validate with "EXE" to obtain a empty screen. The PSION is now in terminal mode and you can link the PSION to the device, by plugging in the RS 232. The measure is displayed, to configurate, push on the "C" key.

2) 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 directly in terminal mode without re-start configuration.

3) 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 launch the program,
- "SET PORT 2" and "ENTER" to select COM2,
- "SET BAUD 9600" and "ENTER" to select speed,
- "CONNECT" and "ENTER", to enter in the terminal mode.

The PC is now emulating a terminal and may be connected to the device by plugging in the RS 232 link cable.

Measure is now displayed and configuration's acces allowed by a press on "C" key.

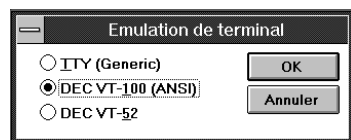
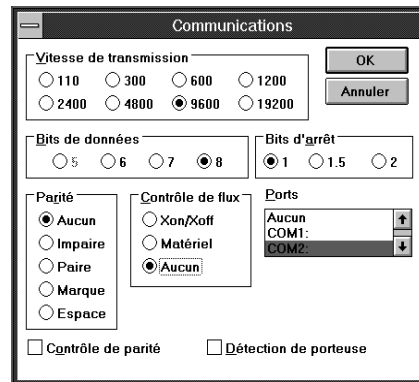
To quit kermit, press "CTRL-\$" then press the key "C". When the message KERMIT-MS appears, type "QUIT" to return to MS-DOS commands.

4) 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.

5) PC with WINDOWS 95/98:

To start up terminal program:

- 1 - Cliquez on button "START",
- 2 - Tick off "PROGRAMS", "ACCESSOIRES", and "HYPER TERMINAL",
- 3 - Click twice on 

Hypertrm.exe

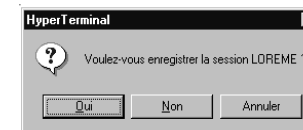
The following window is displayed. Enter a name for a new connection and validate, the hereunder window will appear



Choose a communication port and validate. The belowing windows 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 displayed the following window. To dialog with all LOREME devices without re-start all the method, click on "OK"

To load LOREME session directly:

- 1 - Click on button "Start".
- 2 - Tick off "Programs", "Accessories", and "HyperTerminal".
- 3 - Click twice on the icon 

LOREME.ht

6) Visualization:

When switching on, device is automatically put in measure mode.

Two datas are send to terminal:

10 mV	Value of the input measure,
11.99 mA	Value of the output result.

To access configuration, type on "C" key and follow the configuration procedure.

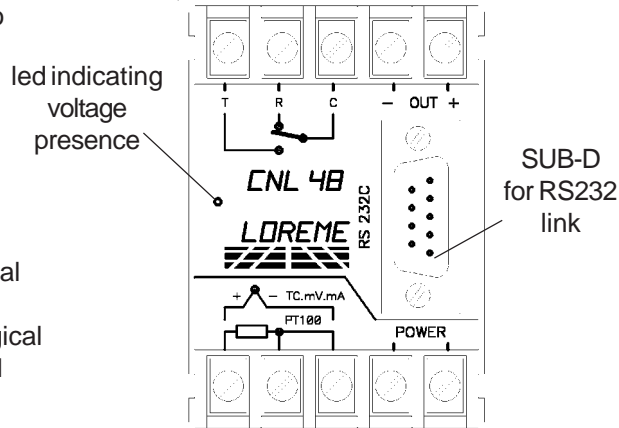
DEVICE PRESENTATION

The purpose of this handbook is to allow to become familiar with the different device possibilities.

It is necessary to make difference between differences devices.

CNL48: universal input, 1 analogical output, 1 relay output.

CNL48/1: universal input, 1 analogical output, 1 sensors power supply, 1 potentiometer reference.



CONFIGURATION

The handbook explains in detail different possibilities of configuration:

Language, input, output, square root, special linearisation, relay, numerical filter.

To enter configuration mode, just press "C" key.

1) Method:

At the configuration, the user is asked different types of questions.

For each one, several answers are possible.

You will find below the detailed description of each case.

1.1) Menu selection:

exemple: INPUT
Y - N

The user makes a choice by pressing the keys "Y" or "N". This choice allows to access the different menus of configuration.

1.2) Parameter selection:

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

Previous choice = YES: - pressing "Y" => choice validation = YES,
- pressing "↵" => choice validation = YES,
- pressing "N" => choice changing = NO.

Previous choice = NO: - pressing "N" => choice validation = NO,
- pressing "↵" => choice validation = NO,
- pressing "Y" => choice changing = YES.

Choice is made by pressing "Y" or "N" keys, and validation is made by pressing corresponding key to displayed answer ("Y" for YES and "N" for NO) or "↵" (PC)/"EXE" (PSION). Pressing key "↵/EXE" without modification allows to validate the previous answer.

1.3) Value acquisition:

exemple: LOW SCALE
4 mA

Two cases are possible:

- validation without modification, just press "↵/EXE",
- value modification on keyboard (simultaneous display), followed by validation with "↵/EXE".

Note:

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

2) Language:

The possibilities of language are:

- French,
- English.

3) Input:

Input possibilities are:

- Voltage, - Pt100,
- Current, - Thermocouple.
- Résistance,

For each type of input, you can choose:

- security, low and high,
- low scale,
- high scale.

Particularity:

- Pt100:

Choice of measure unity , °C ou °F.

- Thermocouple:

Choice of measure unity , °C ou °F.

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

Choice of compensation type, internal or external.

Choose the **internal compensation** when the thermocouple is connected on device with a compensation cable.

Choose the **external compensation** when a compensation box where the temperature will be know and fixed is used. Enter this temperature as the external compensation value.

- Sensor power supply, CNL48/1 version:

To supply a converter in 2 wires technical and measure the current in the loop, it's necessary to configure the device in 4-20 mA current input

View diagram of connection for sensor power supply and current input wiring.

- Potentiometer, CNL48/1 version:

Configure voltage input (mV):

- low scale: 0 mV,
- high scale: 100 mV.

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

Change the voltage input (mV):

- start of scale: The measure value for the start of the range,
- end of scale: The measure value for the end of the range.

View wiring diagram for potentiometer cabling.

4) Square root:

For voltage, current, and resistance input, it's possible to realize a square root. This function executes a square root on the measure percentage of the input range and is reported on analog output. After each new configuration, this function is disabled.

5) Display range:

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

Ex: Input 4-20 mA / Range 0 - 1000 kg

→ Input = 12 mA, Range = 500 kg

For display range, configure:

- unit,
- low scale,
- high scale,

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

6) Analogical output:

Output possibilities are:

- Current,
- Voltage.

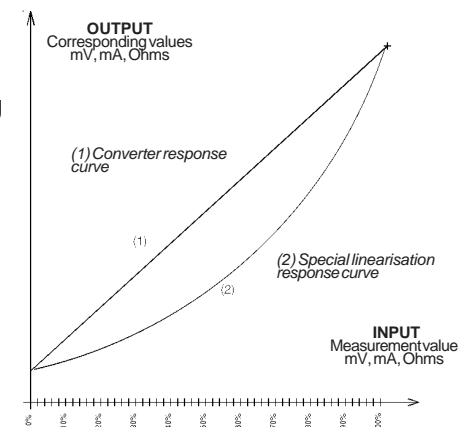
For each type of output, you can choose:

- low scale,
- high scale.

7) Special linearization:

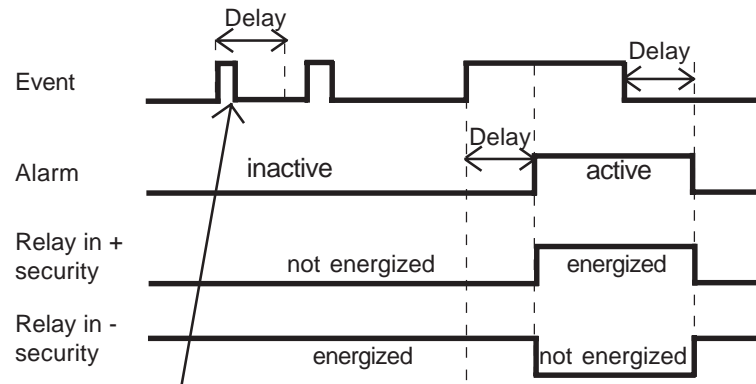
For voltage, current, and resistance input, it's possible to realize a special linearization. When this function is chosen, it is directly validated, but the linearization configuration isn't modified. To modify the special linearization, it is necessary to validate by YES the configuration suggest. 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 physical output value (max.: 51 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 of linearized output value.



8) Relay slot:

Alarms and relays runing:



the time is resetting after the event disappearing

The relay configuration is presented through 2 rubrics:

- Detection type:

- breaking detection,
- threshold detection.

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

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

The two detections types can be chosen simultaneous.

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 removed when the measure goes above the threshold more the hysteresis.

- Relay parameter:

- security,
- delay.

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 seconds), determines the time above which the alarm changes his statement after detection of the event. The delay is active at the appearance and disappearance of the event.

9) Numerical filtration:

The **numerical filter** allows to smooth an analogical output, the measure of which would be disrupted, fluctuating or exposed to interferences

The filter value correspond to measures number on wich output is smoothed:

$$\text{Output (t)} = \frac{\text{Measure (t-1)} \times (F-1) + \text{Measure (t)}}{F}$$

MEASURE MODIFICATION

Sometimes, it may be interesting to modify measure by a 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 "**MEMO**", access code for shifting function and reset the previous shifting value, (after each typed code, wait for a "**BEEP**"), the message "**MEMO**" is sended on the RS 232.
- "<" and ">" keys allow to decrement and increment the measure,
- type on "**ENTER**" to save the shifting.

Observation: The value of measurement shift is memorized and remains active after a new configuration.
To annulate the shift effect, type "MEMO" and then "ENTER" (Reset of the shifting value).

SENSOR BREAKING DETECTION SPEED

Sometimes, it's interesting to modify the sensor breaking detection speed. Device is delivered with an acceleration nul.

To modify the sensor breaking detection speed, it's necessary:

- to be in measure mode,
- type "RPTR" (after each typed code, wait for a "BEEP"), the message "ACCELERATOR" is send on the RS 232.
- type the new value of sensor breaking detection speed (included between 0 and 255),
- type on "ENTER" to memorize the sensor breaking detection speed.

Observation: When the device is not supplied or in configuration, the accelerator is active.
To reset the accelerator, it is necessary to start the "RPTR" function, to put this value to zero, then validate by "ENTER".

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 possible 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.

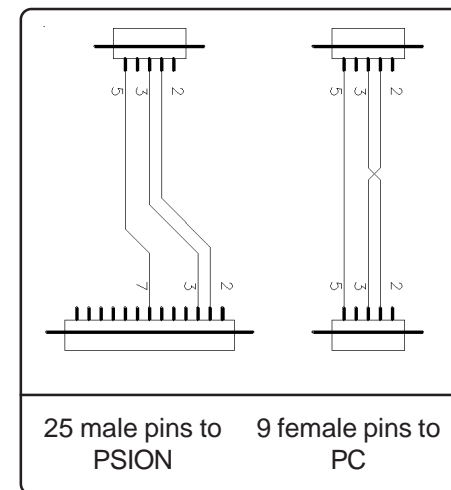
2.2) Power supply:

- 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 control of relays, of contactors, of electrogates, ...
- If the switching of thyristor statical groups, of engines, of speed variator, ... causes strong interferences on 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:

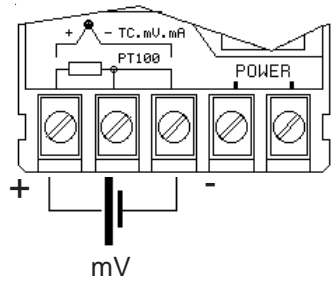
- In harsh conditions, it is advisable to use sheathed and twisted cables whose ground braid will be linked to the earth at a single point.
- It is advisable to separate the input / output lines from the power supply lines in order to avoid the coupling phenomena.
- It is also advisable to limit the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

TERMINAL - ANALYZER LINK

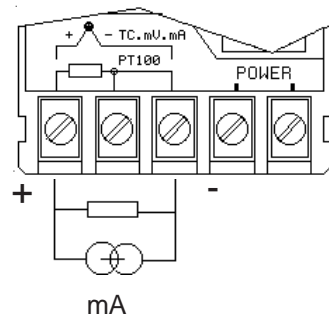


DIAGRAMS OF CONNECTION

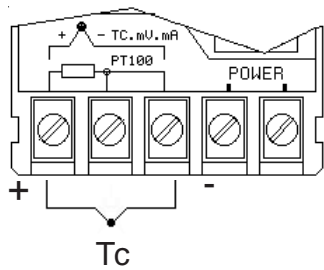
VOLTAGE INPUT



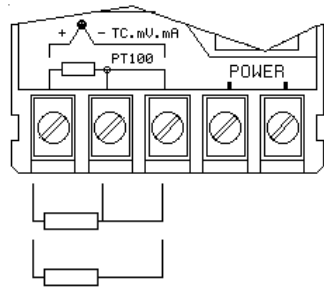
CURRENT INPUT
Shunt 5 ohms to wire



THERMOCOUPLE INPUT

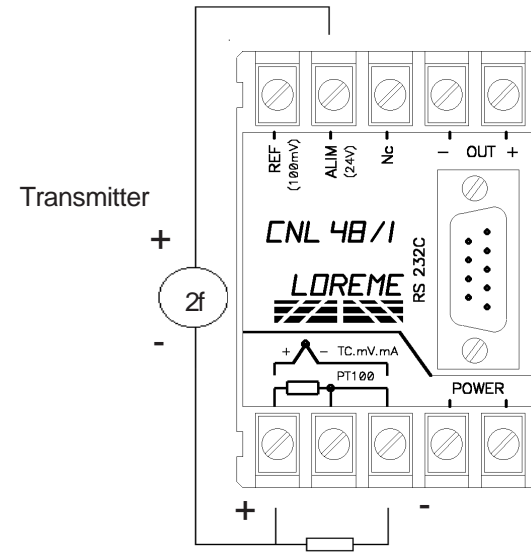


RESISTANCE AND PT100 INPUT
(2 or 3 wires)



DIAGRAMS OF CONNECTION

SENSOR SUPPLY
Shunt 5 ohms to wire



POTENTIOMETER INPUT

