

CONFIGURATION HANDBOOK

TEMAX105LCD



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Download manual at : www.loreme.fr

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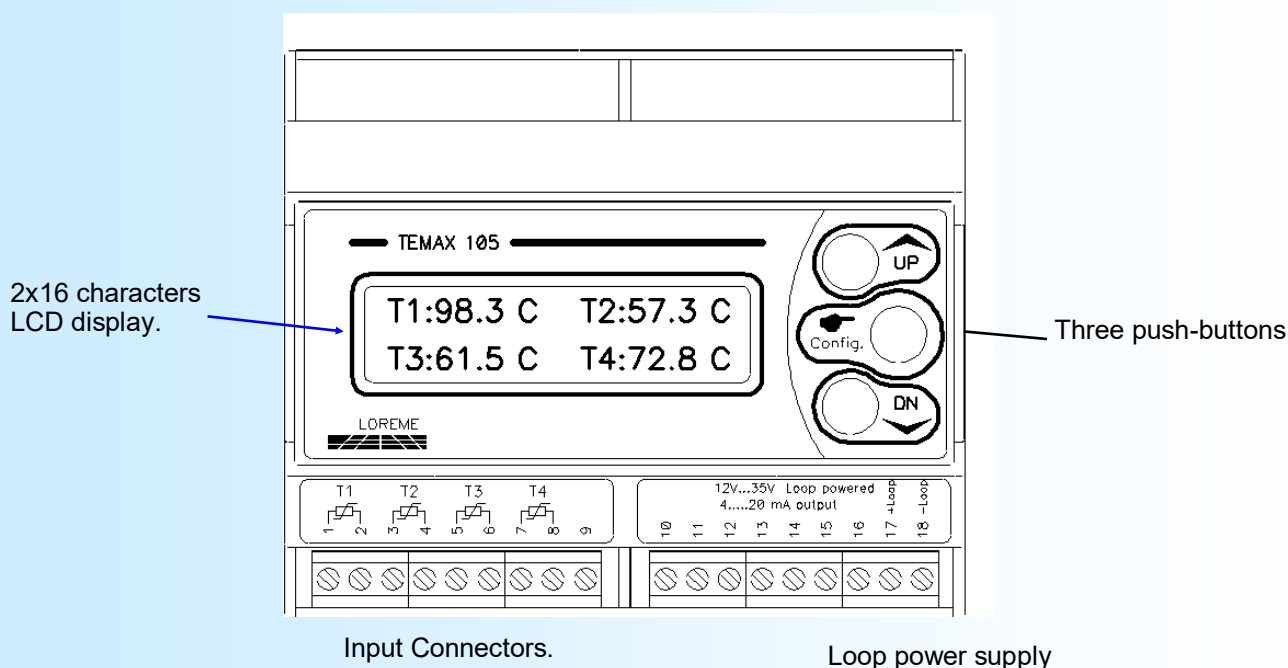
Device Presentation

The **TEMAX105LCD** is a 2 wires loop powered converter with LCD display and up to 4 PT100 inputs. The output information can be the maximal value, the minimal value, the average value of inputs channels or a specific input.

Devices have several options:

- **TEMAX105LCD/2** : 2 RTD inputs version
- **TEMAX105LCD/3** : 3 RTD inputs version
- **TEMAX105LCD/4** : 4 RTD inputs version

The technical data sheet is downloadable here: http://www.loreme.fr/fichtech/TEMAX105_eng.pdf



Front face push buttons functions:

- ▲ <Yes> button or incrementing button.
- ▼ <No> button or decrementing button.
- ⏏ / **Config.** Access to device configuration or value validation.

1) Visualization

At power on, the device displays the temperature measurements.

For example on a 4 temperature inputs device:

T1:84.5° T2:294°
T3:102° T4:-0.4°

T1:84.5° T2:294°
T3:Err T4:-0.4° The 'Err' message is display in case of sensor breaking.

T1:84.5° T2:294°
T3:Err T4:OFF The 'OFF' message is display when the channel is not polled (see configuration).

Tmax: 294° Show the value and type of process (temperature max, min, average, T1, T2, T3, T4)
O: 13.88mA Show the current value

2) Offset setting

To enter in offset setting mode, press **"UP"** and **"DN"** buttons simultaneously during 2 seconds. The LCD display looks like:

T1:84.5°	measure value with offset
OFFSET 0	offset value

3) Configuration

3.1) Method

3.1.1) Menu selection

Example: INPUT
(Y-N)

The choice is done by press the **"UP"** or **"DN"** buttons.
The **"UP"** buttons is for <Yes>, the **"DN"** is for <No>.

3.1.2) Parameter selection

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

Previous choice = YES: - Press **"UP"**, **"Config"** => validation, choice = YES,
- Press **"DN"** => change and validation. choice = NO.

Previous choice = NO:

- Press "**DN**", "**Config**" => validation, choice = NO,
- Press "**UP**" => change and validation, choice = YES.

Choices and validation are made by pressing **"UP"** or **"DN"** buttons, validation are made by pressing **"Config"**.

3.1.3) Value acquisition

Example: LOW SCALE
-20 °C

Three possibilities:

- The validation without modification by the **"Config"** button,
- Change the value by pressing the **"UP"** button (increase) or **"DN"** button (decrease),
- Validate the modification with **"Config"** button.

3.2) language configuration

LANGUAGE
(Y-N)

For the language there are two possibilities: French or English.

3.3) Input configuration

INPUT

(Y-N)

Press **"UP"** to configure input parameters.

LOW SCALE
-20 °C

This is the input value for a 4 mA output current.

HIGH SCALE
200°C

This is the input value for a 20 mA output current.

POLLING CHANNEL
(Y-N)

Choose which input channels are processed.

POLL CHANNEL 1
(Y-N)YES
etc.....

When a channel is not polled, the message **'OFF'** is displaying in measure mode.

3.4) Output configuration

OUTPUT

(Y-N)

Press **"UP"** to configure output parameters.

OUTPUT OF Tmax
(Y-N)YES

The output signal is the maximum value of the polled channels .

OUTPUT OF Tmin
(Y-N)YES

The output signal is the minimum value of the polled channels.

OUTPUT OF Tavg
(Y-N)YES

The output signal is the average value of the polled channels.

OUTPUT OF T1
(Y-N)YES

The output signal is the channel 1 measure.

OUTPUT OF T2
(Y-N)YES

The output signal is the channel 2 measure.

OUTPUT OF T3
(Y-N)YES

The output signal is the channel 3 measure.

OUTPUT OF T4
(Y-N)YES

The output signal is the channel 4 measure.

SECURITY VALUE
22.00 mA

This is the output value when default input appears.
The value must be between 3.6 mA and 22 mA.

RESPONSE TIME
0 sec

Filter of the output (smoothing).
The value must be between 0 and 60 seconds.

LIMITED OUTPUT
(Y-N)NO

Limitation of the output swing.
The output will not cross the 4 & 20 mA values if it is limited.

3.5) End of configuration

OK!

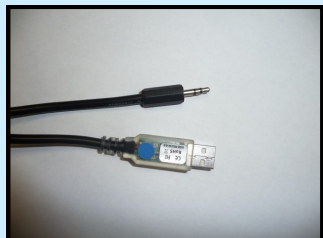
Message to indicate that all the parameters have been saved.

Note:
If there is no action on the buttons during 30 seconds, the TEMAX105 leaves the configuration mode and discards the changes.

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/download/ rubric accessories

- 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).

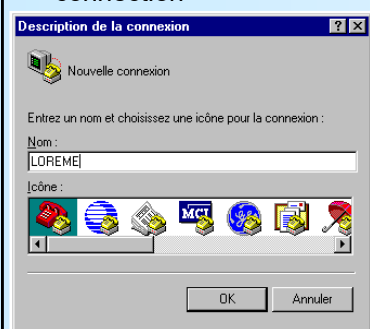
1 The terminal emulation software for PC « HyperTerminal » is resident in windows up to XP version. For later versions, it is downloadable on : **www.loreme.fr in download part** (www.loreme.fr/download/)

=> Run the downloaded software to install it.

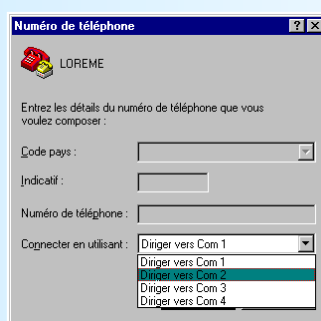
2 Start a "hyper Terminal" connection :

- Click on **"START"** button
- Go to **"All programs \ HyperTerminal Private Edition"**
- Click on **"HyperTerminal Private Edition"**

3 Enter name for the new connection

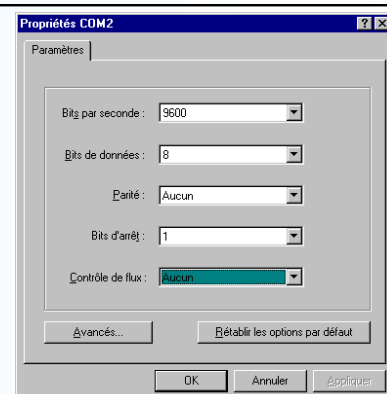


4 Choose the communication port related to the adapter.



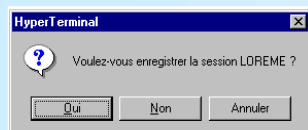
5

- 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.

1) Visualization

T1:84.5 DEG	input 1 measure value
T2:294.5 DEG	input 2 measure value
T3:104.2 DEG	input 3 measure value
T4:-0.5 DEG	input 4 measure value
=>Tmax	process type
294.5 DEG	process value
13.88 mA	output current value.

The handbook explains in detail the different configurations possibilities:
Language, input, analog output.
To enter configuration mode, just press **"C"** key.

At the configuration time, different types of questions are displayed. For each one, several answers are possible. You will find below the detailed description of each case.

example: INPUT The user makes a choice by pressing the keys "Y" or "N".
(Y-N)

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

Previous choice = YES: - pressing **"Y"** or **"Enter"** => choice validation = YES.
- pressing **"N"** => choice changing = NO.
Previous choice = NO: - pressing **"N"** or **"Enter"** => choice validation = NO.
- pressing **"Y"** => choice changing = YES.

Example: LOW SCALE
4 mA

There are two possibilities:

- The validation without modification by typing **"Enter"**,
- The modification with simultaneous display followed by validation with **"Enter"**.

The language possibilities are:

- French
- English

- It is possible, when a mistake is made during a value acquisition, before validating it, to go back by pressing on backspace key. This re-displays the message without taking notice of the mistake.
- In configuration mode, if there is no action on a key during 2 minutes, device goes back in measure mode without taking notice of the modifications made before.
- In configuration mode, if you want go back to measure mode without taking notice of modifications made before, just press the escape key.

Configuration

2.3) Input

The input configuration is made of:

- Low and high temperature measure scale.
- Channel polling.

2.4) Output

Output parameters are:

- Measurement to follow.
- Security value.
- Limitation.
- Response time.

The **security value** allows to set the output to a known state when there is a sensor breaking. This value will be transferred to the output.

The **limitation** allows to bound the output signal swing to 4 & 20 mA even if the input signal value exceed the input scales. Only security value goes beyond this limits.

The **response time** is adjustable from 0 to 60 s. It permits to filter a fluctuating input measure.

2.5) End of configuration

OK! This message indicates that all parameters have been saved.

OFFSET

Sometimes, it may be interesting to modify the measure by a simple terminal keyboard intervention. It can be used in many situations as sensor aging, an input refinement as a result of magnifying effect...

To shift the measure, it is necessary:

- to be in measure mode,
- type on "+" or "-" to access the function,
- on terminal the display become:

**T1: 100.5 DEG
OFFSET 10**

temperature measure with offset,
offset function, offset value.

- use the space key to switch to another channel
- use keys "+" and "-" to adjust offset, measure is directly modified.
- type on "ENTER" to memorize channel offset.

Note: If no key are pressed during two minutes, the TEMAX105 leaves the offset mode automatically.

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 data sheet (direction of assembly, spacing between the devices, ...).
- Comply with the recommendations of use indicated in the technical data 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.

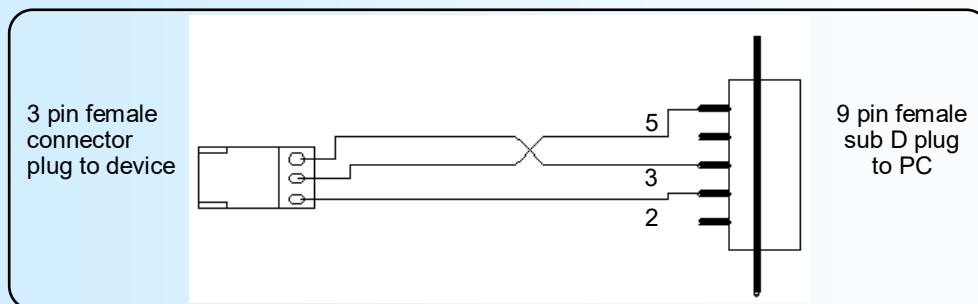
2.3) Inputs / Outputs

- 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.

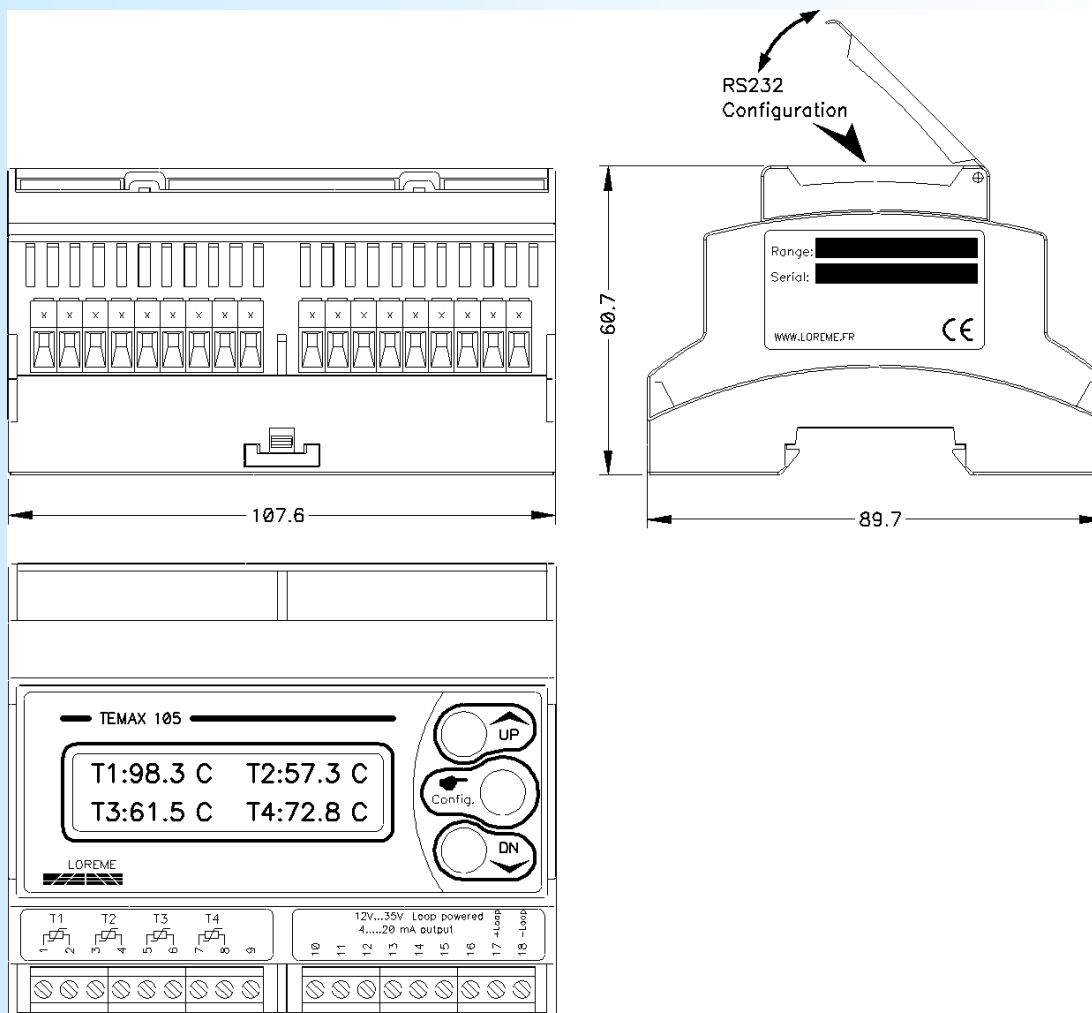
Wiring



TERMINAL - DEVICE LINK



WIRING DIAGRAM



2 Wires PT100 input channel 1:
2 Wires PT100 input channel 2:
2 Wires PT100 input channel 3:
2 Wires PT100 input channel 4:

Terminal 1 , Terminal 2
Terminal 3 , Terminal 4
Terminal 5 , Terminal 6
Terminal 7 , Terminal 8

Power supply / output current:

Terminal 17 (+), Terminal 18 (-)