

## CONFIGURATION HANDBOOK

### CNA105



LOREME 12, rue des Potiers d'Etain Actipole BORNLY - B.P. 35014 - 57071 METZ CEDEX 3  
Phone 03.87.76.32.51

Contact : [Commercial@Loreme.fr](mailto:Commercial@Loreme.fr) - [Technique@Loreme.fr](mailto:Technique@Loreme.fr)

Download manual at : [www.loreme.fr](http://www.loreme.fr)

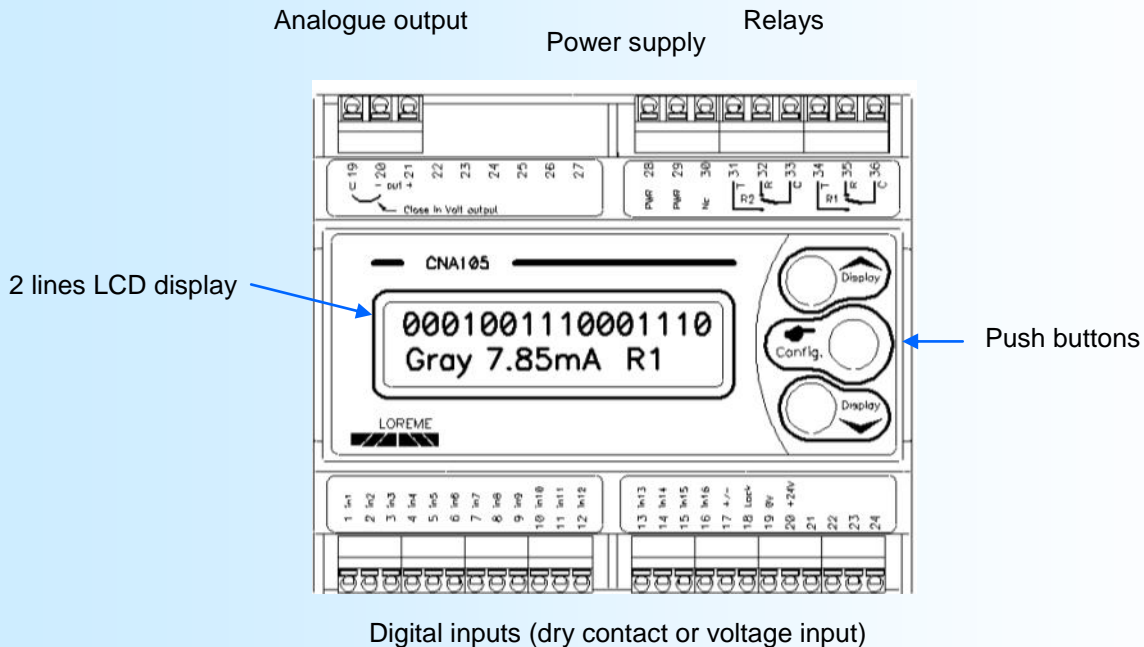
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## Device Presentation

The CNA105 is a converter for parallel outputs encoders. It converts the encoder's position into an analogical signal output. The display allows a quick diagnosis on the proper operation. The CNA105 may be used in many application through its user programmable configuration (encoder resolution, code format type: BCD, gray, binary, polarity, sign, ...). The output relay provide a local management of block stop or alarms.

The technical data sheet is downloadable here: [http://www.loreme.fr/fichtech/CNA105\\_eng.pdf](http://www.loreme.fr/fichtech/CNA105_eng.pdf)



### 1) Visualization

The CNA105 display's several measures pages.

The 'Display ▲ & ▼' buttons allows to navigate between the pages.

By default the page displayed at power on is page 1. It can be changed by selecting another page and after a delay of 10 seconds without intervention, the visualized page becomes the start page.

#### LCD Page 1:

H: 35.84B: 25.62  
 MEASURE: 28.64

High and Low threshold display.  
 Measure display.

*If the monitoring function is enabled:*

R: -----B: -----  
 MEASURE: 28.64

Relay R1 state: "R: -----" , code has not changed  
 "R: CHG! " detection of a change, relay R1 is activated.

#### LCD Page 2:

REGLAGE S.HAUT:  
 35.84

High threshold display.  
 Access to the setting with the '**Config**' button.  
 If no /R1 or /R2 option or monitoring function enabled.

Or NON DISPONIBLE!

#### LCD Page 3:

REGLAGE S.BAS:  
 25.62

Low threshold display.  
 Access to the setting with the '**Config**' button.  
 If no /R2 option.

Or NON DISPONIBLE!

#### LCD Page 4:

ETAT DES ENTREES  
 0011000100000000  
 in16 in1

Display of the 16 inputs state.  
 (in1: LSb, in16: MSb)

**LCD Page 5:**

VALEUR SORTIE  
5.62mA

Output current value display.

**LCD Page 6:**

ETAL CODE 0%  
56

Actual input low scale code value display.

**LCD Page 7:**

ETAL CODE 100%  
4082

Actual input high scale code value display.

**2) Alarms threshold setting**

To access the High Threshold setting, go to LCD page 2 and press the '**Config**' button.

To access the Low threshold setting, go to LCD page 3 and press the '**Config**' button.

REGLAGE S.HAUT :  
35.84



The cursor blinks to indicate the setting mode. Set the value with the buttons ▲ et ▼ .Finish by pressing the '**Config**' button.

CONFIRMER ↑  
ANNULER ↓

Confirm changes with the button ▲.  
Or cancel changes with the button ▼.

**3) Setting of input scale**

To access to setting of code 0% (low scale of input range), go to the LCD page 6.

To access to setting of code 100% (high scale of input range), go to LCD page 7.

At this moment, the user can read the digital code of input. By press the 'Config button', this value is saved as low scale input. When the 'Config' button is pressed, a confirmation is requested:

CONFIRMER ↑  
ANNULER ↓

Confirmer les changement avec le bouton ▲ .  
Ou annuler les modifications avec le bouton ▼ .

=> This can be useful when at installation, we do not know the input codes. In this case it is enough to configure the type of input (resolution, format, ..) leaving the scales by default. Normally configure the output and display scales. When starting the installation, display page 6 to store the real 0% code and page 7 for the real 100% code.

Example:

Initially the input is configured for a gray, 12 bits, unsigned input. The default input scale is 0 - 4095.

We choose to have a display that varies from '100.3' to '256.0'. If at start-up, we notice that the input codes do not vary from 0 to 4095 but actually from 12 to 3855. Then we use the method described above to reposition the input code in order to display '100.3' to '256.0' for the actual variation of the input.

**4) Configuration**

The CNA105 is fully configurable via the front face. A press on the 'Config' button access to the configuration mode, but only if the displayed page is not 2, 3, 6 or 7.

CONFIGURATION

Rev x.x

A temporary message is displaying. it display the hard and soft revision.

**1) Input parameters configuration**

The resolution allows to define the number of input (in1 to in16) that will be taken into account. The '+/-' and 'Lock' entries are still valid.

- The '+/-' input is used to change the sign of the input value.

- The state of the inputs is continually refreshed as long as the 'Lock' input is in the logical '0' state. The state of the inputs is frozen if 'Lock' is in logical '1' state.

## Configuration via the front face

CONFIG ENTREE? (O-N)	Press the ▲ button (Yes) to access to the input parameters. Press the ▼ button (No) to skip this menu.
CODAGE BIN BCD <GRAY>	A press on the buttons ▲ or ▼ allows you to choose the input format. 'Config' to validate the choice.
RESOLUTION: 16 BIT	Sets the input resolution. Press ▲ to increase or ▼ to decrease the value. 'Config' to validate the choice (possible values: 0 to 16).
LOGIQUE <NORMAL>INVERSE	Choose the type of logic: normal or reversed.

**Note:**  
The <normal> logic defines an input that is '0' at rest and '1' when activated. <Reverse> logic defines an input that is '1' at rest and '0' when activated.

SIGNE? OUI <NON>	Permits to choose between signed input code <OUI> or unsigned input code <NON>.
CODE 0%: 0	Setting of the input code for the low display and the low output scale. Press ▲ to increase or ▼ to decrease the value. 'Config' to validate the value
CODE 100%: 16383	Setting of the input code for the high display and the high output scale. Press ▲ to increase or ▼ to decrease the value. 'Config' to validate the value

Example:  
Input BIN or GRAY, on 8 bits. The codes 0% and 100% correspond to 0 and 255 at most. For 12 bits, the codes 0% and 100% correspond to 0 and 4095.

### 4.2) Output parameters configuration

CONFIG SORTIE? (O-N)	Press the ▲ button (Yes) to access to the output parameters. Press the ▼ button (No) to skip this menu.
TYPE <mA> Volt	A press on the buttons ▲ or ▼ allows to choose the type of the output. 'Config' to validate the choice. For voltage output, a strap is needed.

When there is a change of the output type, a message appears:  
METTRE STRAP Put a strap between U & OUT-.  
ENTRE U ET OUT-!  
ou  
ENLEVER STRAP Remove the strap between U & OUT-.  
ENTRE U ET OUT-! Switching from a voltage output to a current output.

SORTIE 0% 4.00mA	Low scale. Press ▲ to increase or ▼ to decrease the value. 'Config' to validate the value (limits: 0 mA & 22 mA or 11V).
SORTIE 100% 20.00mA	High scale. Press ▲ to increase or ▼ to decrease the value. 'Config' to validate the value (limits: 0 mA & 22 mA or 11V).

### 4.3) Display parameters configuration

CONF. AFFICHAGE? (O-N)	Press the ▲ button (Yes) to access to the display parameters. Press the ▼ button (No) to skip this menu.
NB DECIMALE: 1	Set the number of displayed decimals.

AFFICHAGE 0% 22.5	Set the displayed value for the low input (0 %) code scale.
AFFICHAGE 100% 40.9	Set the displayed value for the high input (100 %) code scale.
TPS DE REPONSE 1.0 sec	Permits to filter the input code variations by setting the response time.

#### 4.4) Code monitoring function

The CNA105 has a function that allows it to monitor the input code (depends on the resolution + sign, the Lock input is not monitored) and to activate the R1 relay when changing.

##### Operation:

If the input code change, relay R1 is activated. It remains in this state for a configurable period ("hold time"). If a change occurs during this time, the period restarts. If there has been no change during this time, relay R1 is deactivated.

*There is a delay of about 10 ms between the detection of the change and the action on the relay.*

FCT SPECIALE? (O-N)	Press the ▲ button (Yes) to access to the rubric. Press the ▼ button (No) to end the configuration.
NON DISPONIBLE !	This message is displayed if the CAN105 has no output relays.
if not:	
FCT SUIVI CODE? OUI <NON>	Permits to activate the input code monitoring <OUI> or deactivate it <NON>.
TPS DE MAINTIEN 1.0 sec	Permits to set the hold time (from 0 to 600 s).
OK!	This message indicates that all the parameters have been successfully saved.

##### Note:

*If, during the configuration process, no buttons are pressed for more than 90 s, the device returns to measure mode without saving the new 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):  
[http://www.loreme.fr/aff\\_produits.asp?rubid=53&langue=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](http://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.

**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 session whereas this one is connected, it is necessary to disconnect it, modify the parameters and then to reconnect it.

## Terminal mode

### Configuration

The CNA105 (rev 0.3 and up) can be configured through the RS232 link. Just open a HyperTerminal window, connect the cable between the PC and the CNA105.

When the device is connected to a terminal it sends a series of measurements. To access the configuration, simply press the 'C' key on the terminal keypad.

The display then becomes:

CONFIGURATION

Rev x.y

CONFIG ENTREE?

(O-N)

press 'O' to access the input parameters, 'N' to go to the next menu.

CONFIG SORTIE?

(O-N)

CONF. AFFICHAGE?

(O-N)

CONFIG RELAIS1?

(O-N)

Only accessible on a CNA105/R1 or CNA105/R2.

Adjusts relay 1 threshold (the operation of the relay 1 is fixed in high threshold)

CONFIG RELAIS2?

(O-N)

Only accessible on a CNA105/R2.

Adjusts relay 1 threshold (the operation of the relay 1 is fixed in low threshold)

FONCTION SPECIALE?

(O-N)

Only accessible on a CNA105/R1 or CNA105/R2.

Enable the code monitoring function for relay R1 (see rubric 4, page 6).

OK!

End of configuration.

### Note:

- 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.



## 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 Rev2 READY TO TRANSFER...

The device is now in the firmware load mode and is waiting for the firmware file. This file is provide by LOREME and contain the firmware code in Intel HEX format.

Select the « Transfer », « Send a text file ... » in the HyperTerminal menu.  
Select the directory and open the file. The HyperTerminal program begins to send the file to the device.

### FIRMWARE LOADER Rev2 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 errors occurs. Otherwise, these following message could be displayed:

- **SERIAL COM ERROR !**      Error during receipt.
- **SERIAL TIMEOUT !**      Waiting time of receipt elapsed (60 s).
- **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 an inoperative 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 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**

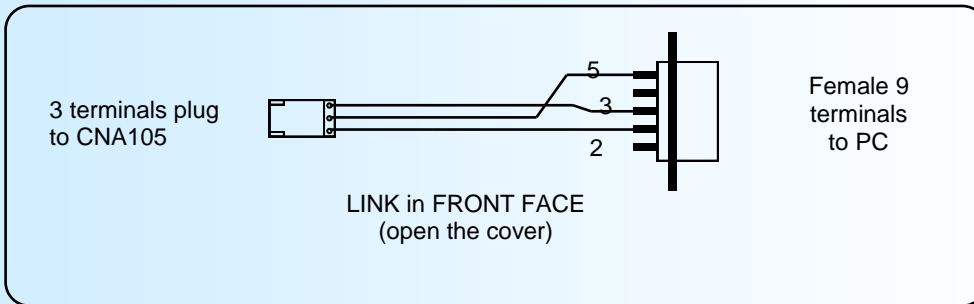
- Comply with the features indicated in the technical sheet (power supply voltage, frequency, allowance of the values, stability, variations ...).
- It is better that the power supply should come from a system with section switches equipped with fuses for the instrumentation element and that the power 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**

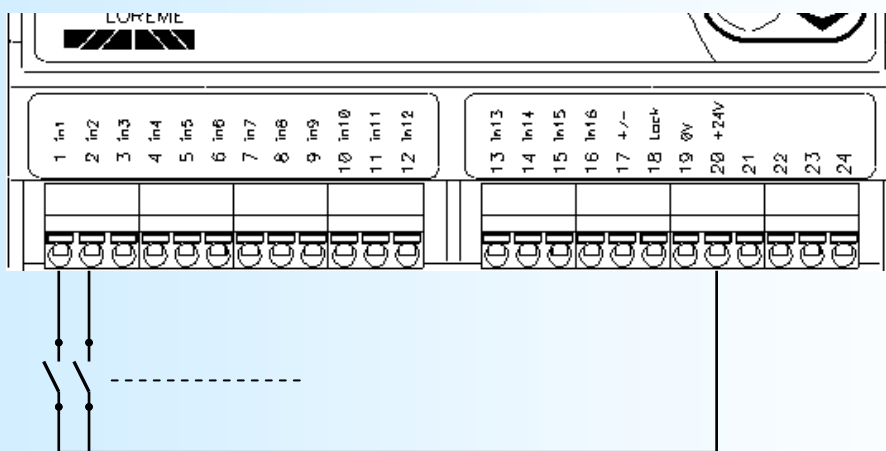
- In harsh conditions, it is advisable to use sheathed and twisted cables whose ground braid will be linked to the earth at a single point.
- It is advisable to separate the input / output lines from the power supply lines in order to avoid the coupling phenomena.
- It is also advisable to limit the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

# Wirings

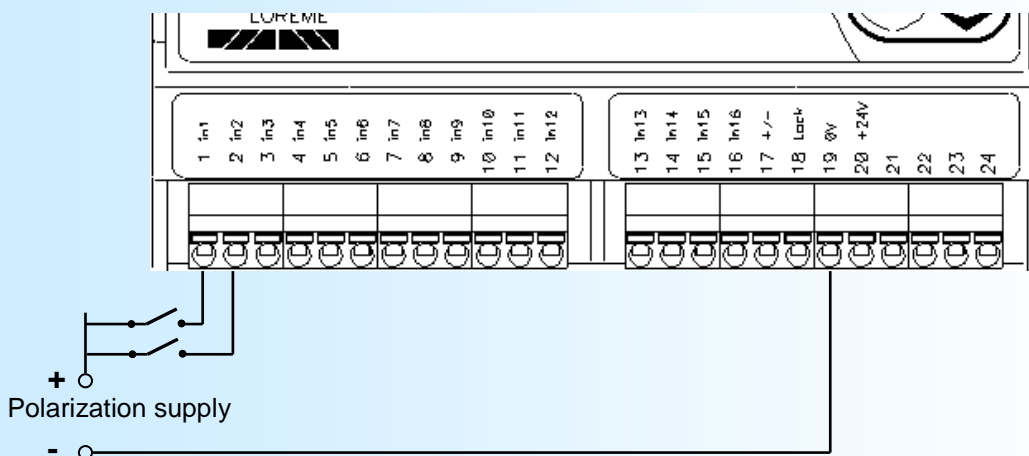
## PC - DEVICE LINK



## Outputs wiring example

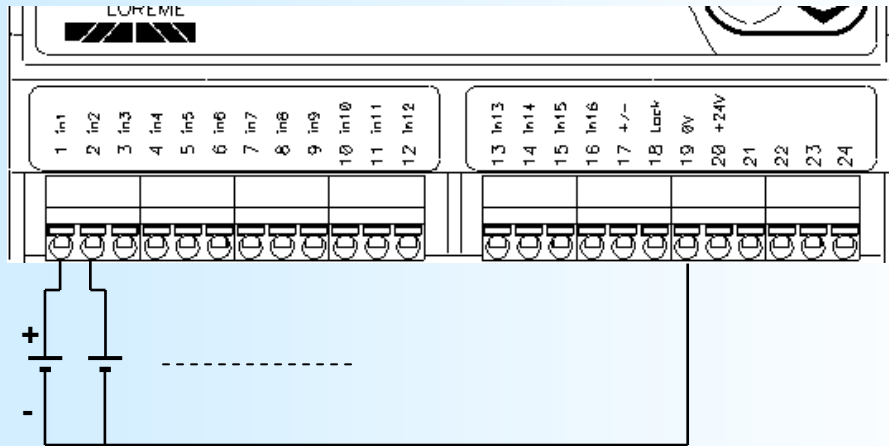


Example of contact input wiring using the bias voltage provided by the CNA105.



Example of contact input wiring with external polarization.

Outputs wiring example



Example of voltage input wiring.