High voltage Isolation amplifier
Signal conditioner

LOREME

CONFIGURATION HANDBOOK

CNL34DHig
/
CNL34DHVig

Rev1.0 - Rev0 - 12/06/24

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Device Presentation

The **CNL34DHig** is a converter with a high galvanic isolation input. It can handle input of process or temperature type. The transmission of the measure is made by a 0-4-20 mA or 0-2-10 V, fully programmable output.

The **CNL34DHVig** is a converter with high galvanic isolation input. It can handle input of HV voltage (up to 5000Vdc) or mV voltage (up to 120mV) input for using with external current shunt. The transmission of measurement is made by a 0-4-20mA or 0-2-10V, fully programmable output.

The technical data sheet can be downloaded here: http://www.loreme.fr/fichtech/CNL34DHig_eng.pdf

Removable terminal
(power supply, output)

CNL34DHig

Green Power LED
indicator

Power

Output
2Kvac

Power
10Kvac

INPUT

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Hinged lid.
(RS232 link access)

Removable terminal
(input)
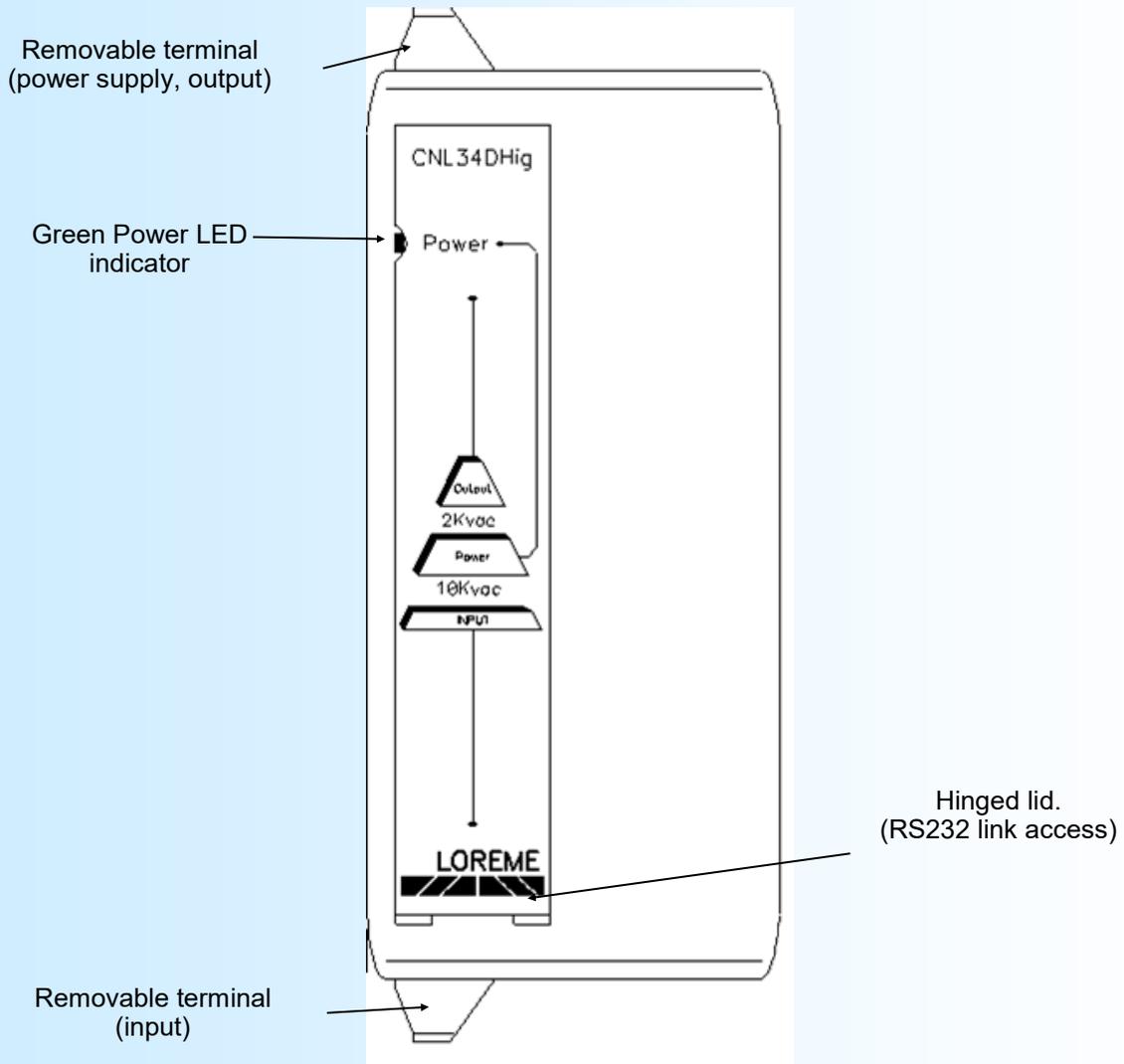
RS232 link setting

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The device can be configured in terminal mode via an RS232 link.

Step 1: Driver installation for USB / RS232 adapter
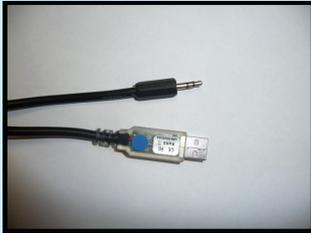
- download driver at www.loreme.fr:
http://www.loreme.fr/aff_produits.asp?rubid=53&langue=fr

- 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 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. 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.

Terminal mode

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Visualization

When powered on, the device is automatically put in measure mode.
Two information's are send to the terminal:

60.00 mV	Input measure value.
12.00 mA	Output value.

Configuration

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

1) Method

At the configuration time, 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
example: INPUT   The user makes a choice by pressing the keys **"Y"** or **"N"**.
          (Y-N)   This choice **"Y"** allows to access the configuration rubric.

1.2) Parameter selection
example: VOLTAGE   or   VOLTAGE
          (Y-N)YES   (Y-N)NO

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

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

1.3) Value acquisition
example: LOW SCALE
           4 mA

Two cases are possible:
- validation without modification, just press **"Enter"**,
- value modification on keyboard (simultaneous display), followed by validation with **"Enter"**.

Notes:
*- It is possible, when a mistake is made during a value acquisition, before validating it, to go back by pressing backspace
  which re-displays the message without taking notice of the wrong value.
- In configuration mode, if there is no action, device went 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" key.*

2) Language

Languages possibilities are:
- French,
- English.

3) Measurement Inputs

3-1) CNL34DHig

The inputs available are :
- Voltage (mV).
- Current (mA) with external 2.5 Ohms shunt.
- Pt 100.
- Thermocouple B, E, J, K, R, S, T, W5

With, for each input type, the setting of Low and High input scales.

3-2) CNL34DHVig

The inputs available are:
- Voltage (HV)   Voltage input up to 5000Vdc
- Current (A)   mV input voltage for external current shunt.

For current input (A), you should set the shunt sensitivity in A/mV. And for each input type, the setting of Low and High input scales.

4) Output

- Type of output:
  - Current from 0 to 22 mA.
  - Voltage from 0 to 11 V (500 Ohms internal shunt).

- Low and high scale.

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

- **The response time** allows to smooth analogical output signal whose input measure signal would be disrupted, noisy or fluctuating. It is adjustable from 0.2 to 60 s.

- **The limitation** allows to bound the output signal swing to the configured output low & high scales for all input signal values. Only security value goes beyond this function.

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 a 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 becomes:

      100.5 DC   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.

Notes:
- *The offset stay active even after a power off. To reset the offset, it is necessary to start the* **"OFFSET"** *function, put the value to zero with the* **"+"** *and* **"-"** *keys, then validate it by* **"ENTER"**.
- *In offset control mode, when there is no action on* **"+", "-"** *or* **"ENTER"** *keys during 120 s, the device leaves the mode without keeping the adjusted offset.*

EMC Consideration

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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 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 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 dimmer, ... 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

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TERMINAL - DEVICE LINK

3.5 mm stereo jack plug to device

9 pin female sub D plug to PC
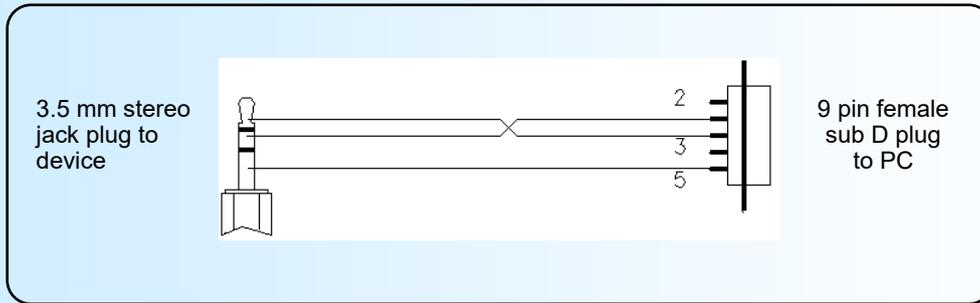
WIRING DIAGRAM
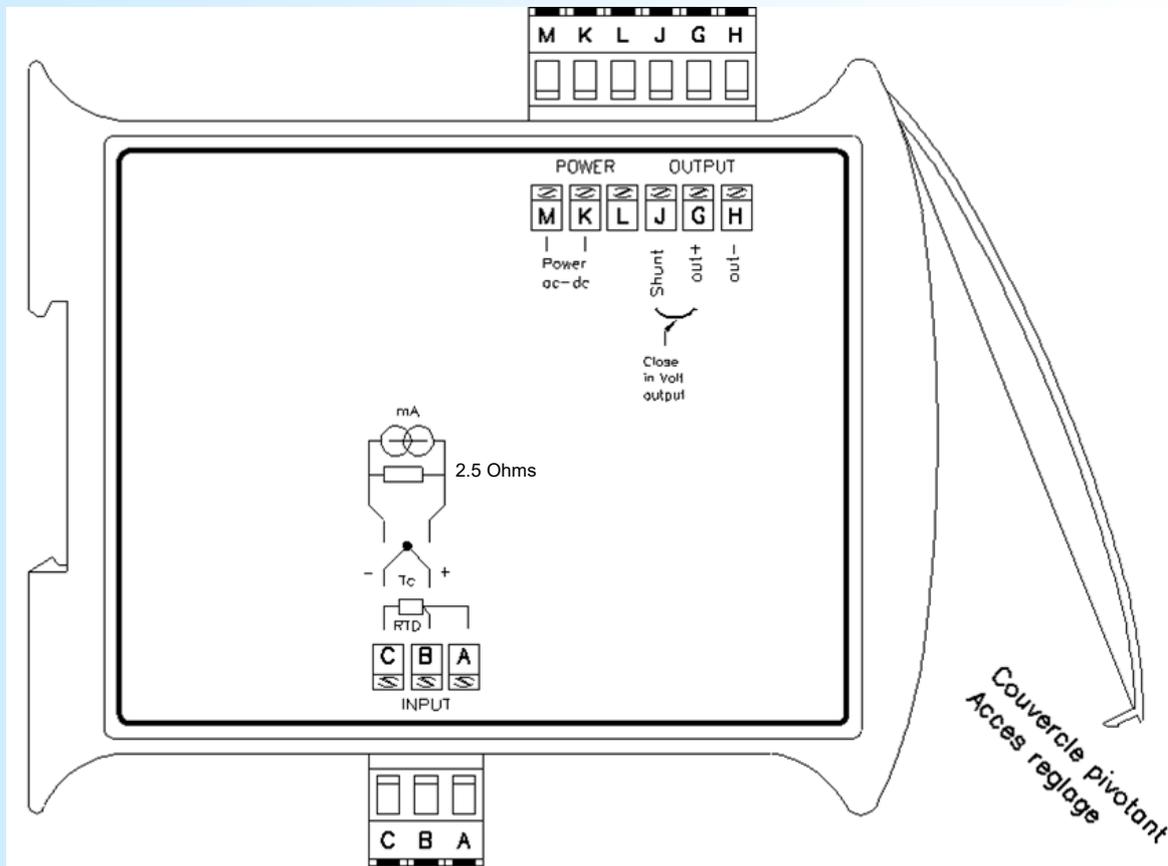
mV input:	terminal B (+), terminal C (-)
mA input:	terminal B (+), terminal C (-), need a 2.5 Ohms external shunt.
PT100 input (2 wires):	terminal A et B (+), terminal C (-)
PT100 input (3 wires):	terminal B (+), terminal A (line), terminal C (-)
Tc input:	terminal B (+), terminal C (-)
Analogical output:	terminal G (+), terminal H (-), terminal J (500 Ohms internal shunt) for voltage output it is necessary to short-circuit the terminals G & J.
Power supply:	terminal M, terminal K

Wiring

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Wiring diagram for CNL34DHVig
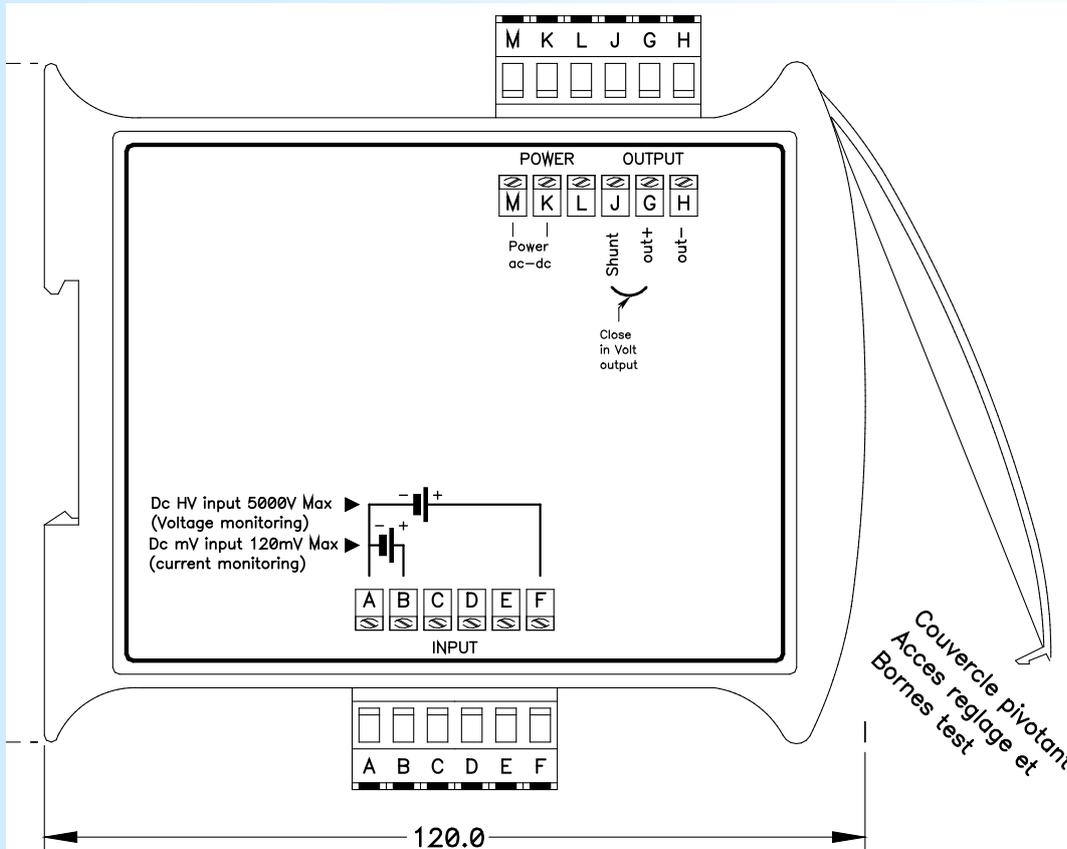
Entrée HV:	borne F (+), borne A (-)
Entrée mV pour shunt courant externe:	borne B (+), borne A (-)
sortie analogique:	borne G (+), borne H (-), borne J (shunt interne 500 Ohms) en sortie tension il faut court-circuité les bornes G et J.
Alimentation:	borne M, borne K