

CONFIGURATION HANDBOOK

DSL35LCA



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Download manual at : www.loreme.fr

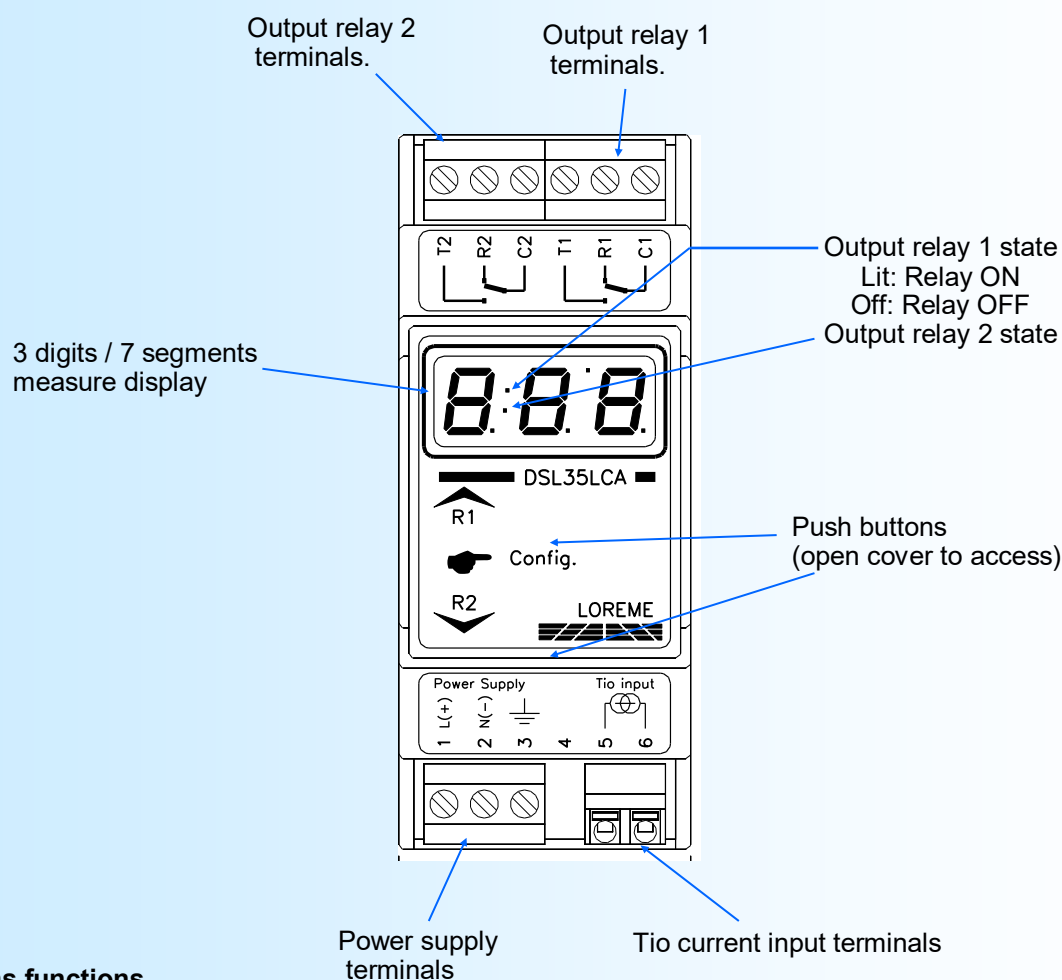
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Device Presentation

The DSL35LCA is a threshold relay with AC current measurement. It is compact and is designed to resolve economical problems of monitoring or protection. The 3 digits LED display allows a quick control of the measure and the 2 push-buttons under the cover permits a quick threshold setting and a complete configuration of the device.

The technical data sheet can be downloaded here: http://www.loreme.fr/fichtech/DSL35LCA_eng.pdf

USER INTERFACE



Push buttons functions

- ▲ Relay 1 threshold setting access or <YES> button or value increasing button.
- ▼ Relay 2 threshold setting access or <NO> button or value decreasing button.
- ☛ Configuration access (press both buttons simultaneously).

Configuration

Visualization

On power on, the DSL35LCA displays the current measurement directly on the front panel.

The message "Hi" is displayed if the current is above 999 A.

If no measurement Tio is connected on the current input terminals, the device will display a current greater than 0.8 times the configured nominal current (for example: 26.4 A for a nominal current of 32 A).

Relays threshold setting

1) Relay 1

Pressing the ▲ button permits to access the relay 1 threshold setting. The actual threshold is displayed and the ▲, ▼ permits to increment or decrement it. The display is flashing during the adjustment. The value is automatically validated after 4 seconds if no key is pressed.

2) Relay 2 (only with /R2 option)

Pressing the ▼ button permits to access the relay 2 threshold setting. The actual threshold is displayed and the ▲, ▼ permits to increment or decrement it. The display is flashing during the adjustment. The value is automatically validated after 4 seconds if no key is pressed.

Configuration

The device is fully configurable by the push buttons on the front panel. Access to the configuration is done by pressing both buttons (⬅➡). It is then possible to modify the input and the relays parameters.

1) Input configuration

The configurable input parameters are:

- Tio nominal current.
- Measure filter.

The nominal current parameter corresponds to the Tio current measure caliber.

The measure filter corresponds to the integration time for the RMS measurement value calculation. This parameter is configurable from 0.1 s to 60.0 s (1 s by default). It should be noted that the amplitude of the ripple on the calculated RMS measurement is inversely proportional to this value. A fast response time implies a strong ripple on the RMS measure value. For example with a filter of 1 s, the ripple is 0.6% of the RMS value.

It should also be noted that the displayed value is also averaged with a filter of about 3 seconds.

The device displays the message 'Inp', pressing the ▲ button permit to access to the input configuration. Pressing button ▼ permit to skip the input configuration and continue with the next rubric.

1.1) Nominal current setting

The device displays the message 'ino', pressing the ▲ button permit to access the setting. Pressing button ▼ permit to skip the setting and continue with the next rubric. The actual nominal current value is displayed and the ▲, ▼ permits to increment or decrement it. The display is flashing during the adjustment. The value is automatically validated after 4 seconds if no key is pressed. The nominal current is adjustable from 5 Arms to 900 Arms.

1.2) Measure filter setting

The device displays the message 'FLt', pressing the ▲ button permit to access the setting. Pressing button ▼ permit to skip the setting and continue with the next rubric. In adjustment mode, the actual measure filter value is displayed and the ▲, ▼ permits to increment or decrement it. The display is flashing during the adjustment.

The value is automatically validated after 4 seconds if no key is pressed. The filter parameter is adjustable from 0.1 s to 60.0 s.

Configuration

2) Relay 1 or relay 2 (/R2 option) configuration

The device displays the message 'AL1' or 'AL2'. Pressing the ▲ button permit to access the relay parameters configuration. The ▼ button permits to go to the next rubric or to end the configuration procedure. In this case, the whole parameters are memorized and the message 'End' is displayed.

The relay parameters are:

- Threshold type detection, high or low.
- Hysteresis,
- Delays.

2.1) Threshold detection type

It is possible to choose the detection type with this parameter.

The **threshold detection** works in this manner:

- **High threshold** detection:
 - .The relay is activated when measure goes above threshold,
 - .The relay is deactivated when measure goes below threshold minus hysteresis.
- **Low threshold** detection:
 - .The relay is activated when measure goes below threshold,
 - .The relay is deactivated when measure goes above threshold plus hysteresis.

The detection configuration possibilities are:

- High threshold detection, with displayed message 'AHi'.
- Low threshold detection, with displayed message 'ALo'.

Pressing the ▲ (Yes) button permits to validate the displayed choice.

Pressing the ▼ (No) button permits to change the displayed choice.

2.2) Hysteresis (dead band)

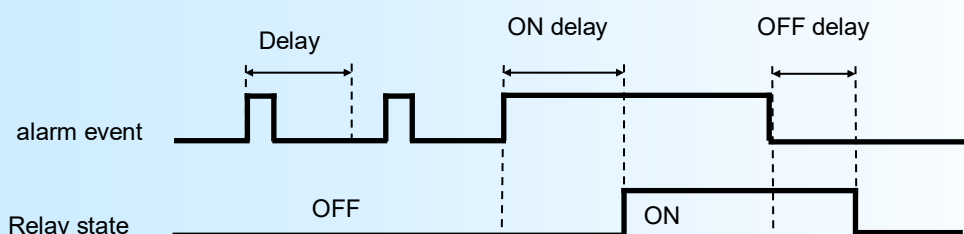
The device displays the message 'db', pressing the ▲ button permit to access the adjustment. Pressing button ▼ permit to skip the adjustment and continue with the next rubric. In adjustment mode, the actual hysteresis is displayed and the ▲, ▼ permits to increment or decrement it. The display is flashing during the adjustment.

The value is automatically validated after 4 seconds if no key is pressed. The hysteresis is adjustable from 0 to 20 A.

2.3) ON & OFF delays

The **ON delay** value, which is configurable from 0 s to 60 s, determines the time beyond which the relay is activated after an alarm event occurs.

The **OFF delay** value, which can be configured from 0 s to 60 s, determines the time after which the relay is deactivated after the disappearance of an alarm event.



2.3.1) ON delay configuration

The device displays the message 'don', pressing the ▲ button permit to access the adjustment. Pressing button ▼ permit to skip the adjustment and continue with the next rubric. In adjustment mode, the actual ON delay is displayed and the ▲, ▼ permits to increment or decrement it. The display is flashing during the adjustment.

The value is automatically validated after 4 seconds if no key is pressed.

2.3.2) OFF delay configuration

The device displays the message '**dof**', pressing the ▲ button permit to access the adjustment. Pressing button ▼ permit to skip the adjustment and ends the configuration. In adjustment mode, the actual OFF delay is displayed and the ▲, ▼ permits to increment or decrement it. The display is flashing during the adjustment. The value is automatically validated after 4 seconds if no key is pressed.

3) End of configuration

At the end of the configuration, the whole parameters are memorized, the message '**End**' is displayed and the device return to measure mode.

Notes

- If there is no action on the buttons for a delay longer than 30 seconds, the device leaves automatically the configuration mode and returns in measure mode without memorizing the new configured parameters.

- If the user does not complete the configuration process until the '**End**' message, the reconfigured parameters will not be saved.

- The default factories parameters are:

- * Input: Tio nominal current = 32 A, measure filter = 1.0 s.
- * Relay1: High threshold detection, threshold = 0.2 A, hysteresis = 0.02 A, ON & OFF delays = 1.0 s.
- * Relay2: High threshold detection, threshold = 16.0 A, hysteresis = 0.5 A, ON & OFF delays = 1.0 s.

RS232 link setting

The device can be 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.

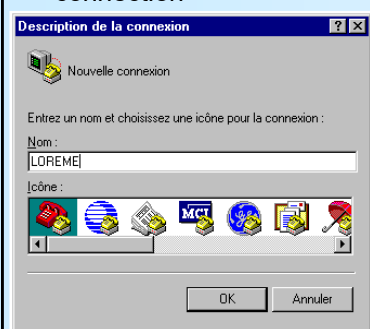
Step 2: Setting of terminal emulation software (PC with Windows).

- 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/)

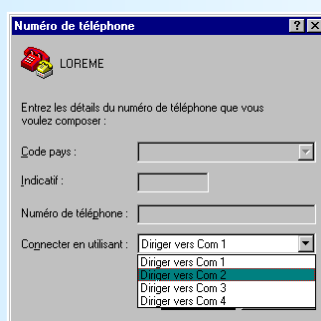
=> Run the downloaded software to install it.

- 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

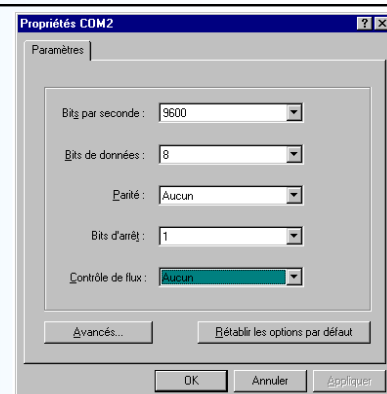


- 4 Choose the communication port related to the adapter.



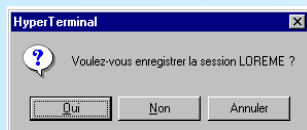
- 5

- 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.

- 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.

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 Rev0 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 Rev0 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.

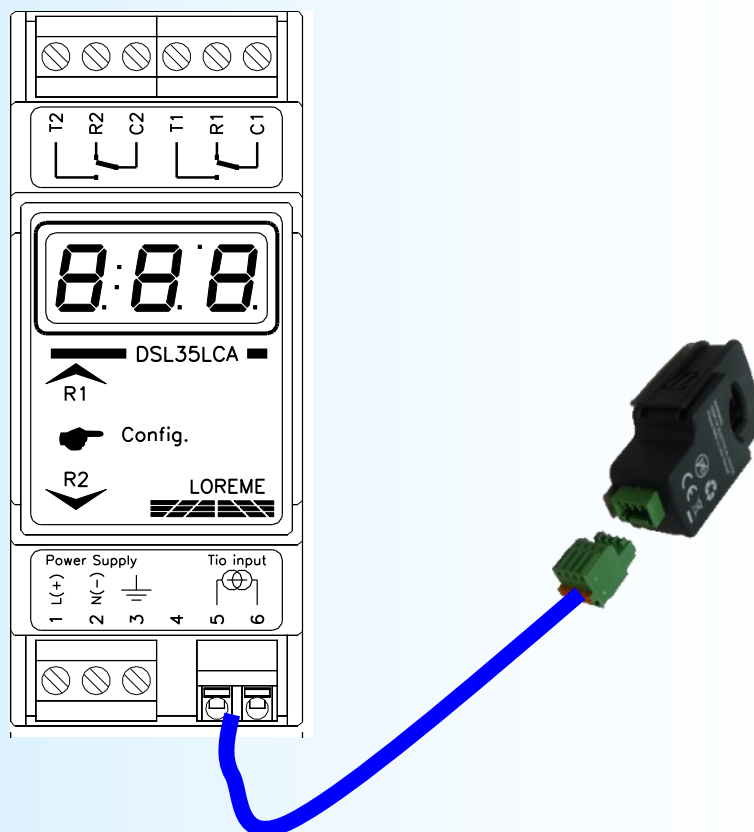
2.2) Power supply

- 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.

Wiring



Power supply: terminals 1 (L) & 2 (N).

Current measure input: terminals 5 & 6 (Tio input).

Relay 1: terminal T1 (work), terminal R1 (rest), terminal C1 (common).

Relay 2: terminal T2 (work), terminal R2 (rest), terminal C2 (common).