Neets Control - LiMa

Installation Manual

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Foreword

This document describes how to install and operate the Neets Control - LiMa.

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CHANGES - Neets reserve the right to change the specification and functions of this product without prior notice.

Questions, AFTER reading this manual, can be addressed to your local distributor or:

Neets A/S
Langballe 4
8700 Horsens
Denmark

by E-Mail: Support@Neets.dk
or you may use our contact form at www.neets.dk

Revision list

This document has the following revision changes:

Author: Date	Description	Pages	Rev
TBB: 09-08-2018	First release.	All	1.00

What is in the box?

When you open the box it will contain the following items:

- 1 x Neets Control - LiMa
- 5 x Terminal connectors
- 2 x Screws and plugs for wall mounting O 4 x 60 mm
- 2 x Screws for mounting on Neets Rack Shelf M 4 x 35 mm
- Manual

⚠ Note that PoE power injector is not included. Use the PoE Injector (Part number: 302-000508).

Important Safety Instructions

Read these instructions.
Read and understand all safety and operating instructions before using the equipment.
Keep these Instructions.
The safety instructions should be kept for future reference.
Heed all warnings.
Follow all warnings and instructions marked on the equipment or in the user information.
Avoid attachments.
Do not use tools or attachments that are not recommended, as they may be hazardous.

Warning!:

- This equipment should be operated only from the included power supply.
- To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).
- Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.
- Do not defeat the safety purpose of a polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards. Contact your local Neets reseller or distributor.
- If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.
- Do not use this equipment near water.
- To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture and objects filled with liquids.
- Unplug the product before cleaning. Clean only with a dry cloth and not cleaning fluid or aerosols. Such products could enter the unit and cause damage, fire, or electric shock. Some substances may also mar the finish of the product.

FCC Class A Notice:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation. The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

FCC regulations state that any unauthorized changes or modifications to this equipment, not expressly approved by the manufacturer, could void the user's authority to operate this equipment.

The lightning bolt triangle is used to alert the user to the presence of uninsulated "dangerous voltages" within the unit's chassis that may be of sufficient magnitude to constitute a risk of electric shock to humans.

The exclamation point triangle is used to alert the user to presence of important operating and service instructions in the literature accompanying the product.

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Contents

Description

Neets Control – LiMa is a powerful control system enabling intuitive touch control through touch panels or standard browsers. For easy installation, the LiMa can be powered by PoE IN.

Function Description

- 2 Bi-directional RS-232 port or IR ports
  Used for controlling projectors, displays, amplifiers & other AV devices with feedback functionality
- 2 General Purpose I/O ports
  Used for input/output control of relays, switches and sensors
- 2 Built-in low-voltage relays
  Used for contolling external devices such as electrical screens
- Ethernet port
  Used for controlling 10 LAN and 8 Neets extension devices and connection to Central Control and Project Designer as well as access to graphical user interface
- Power over Ethernet (PoE)
  PoE IN for power of the LiMa
- Email notifications and warnings. Email notification on lamp/filter hours and warnings
- 1 front USB port
  Used for easy system configuration, uploading and downloading project files
- Easy mounting
  Can be mounted in trunking systems, hidden from sight, or in the IU Neets Rack Shelf
- PoE powered
  Power the LiMa with a compliant PoE power supply or switch (PoE injector not included)

Specifications

RS-232 (Tx+Rx) or IR (controls up to 2 IR devices on each port)	2
LAN device control	10
I/O	2
Low voltage relay	2
PoE input	1
USB port for programming	1
PIR sensor input	Yes
Light on/off	Yes
Room darkening	Yes
Screen up/down	Yes
Volume control	Yes
Device feedback	Yes

Specifications
Neets Control - LiMa

RS-232 / IR port
Ports	2 x bidirectional
Baud rate	1200 - 115200 bit/sec
Data bits	7, 8
Parity	Even, Odd, None
Stop bits	1, 2
IR frequency	400 Hz to 500 Hz
Connector	3 pin screw block

Input / Output
Ports	2 x I/O
Input trigger low	< 1VDC
Input trigger high	< 4VDC
Output type	Open drain
Isolated output	No
Max voltage load	24 VDC
Max current	0,5 A
Connector	3 pin screw block

Relay Output
Voltage max	30 VDC
Current max	0,5 A
Connector	2 pin screw block

Network (LAN)
Speed	10 / 100 Mbit
Duplex modes	Half or Full
DHCP	Default off
Default IP	192.168.254.252
Default gateway	192.168.1.1
Default subnet mask	255.255.255.0

PoE input
Compliance	802.3af / 802.3at
802.3af PD mode	A + B
PD Class	0 (802.3af) / 4 (802.3at)

General
Width	220 mm
Height	35 mm
Depth	70 mm
Width	8,66 inches
Height	1,38 inches
Depth	1,46 inches
Weight	0,5 kg
Shipping weight	1,0 kg
Shipping dimension (W/D/H)	280 mm / 190mm / 55 mm
Storage temperature	-20 ˚C to 50 ˚C
Storage moisture	Non-condensing
Operation temperature	0 ˚C to 30 ˚C
Operation moisture	Non-condensing

Product number
|	
310-0304	LiMa

Approvals
IEC/EN	61000-6-1
IEC/EN	61000-6-2
FCC	Part 15, Class A
CE	

Installation

The Neets Control – LiMa is designed to be easily installed in any convenient location. The unit can be placed on a desk free standing. Simply unpack the unit, mount the adhesive feet and it is ready to go.

Alternatively, the unit can be mounted under a table or on a ceiling with the included self-tapping screws. Unpack the unit, place the unit on the surface where it is to be mounted, and screw the two screws through the holes in the top as shown below:
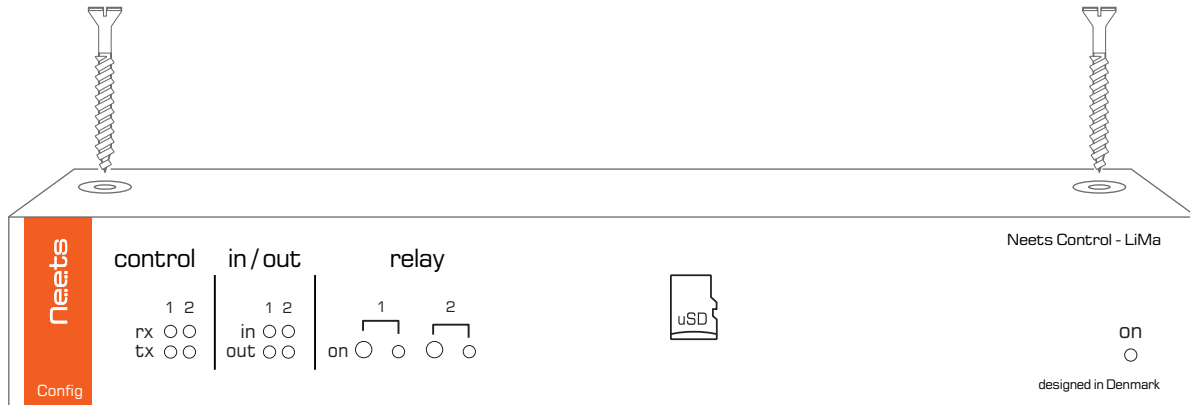
The unit also can be mounted in a 19 inch standard rack using the Neets Rack Shelf (Part number: 306-0017). See separate manual for installation instructions.

Connection and Controls

Front
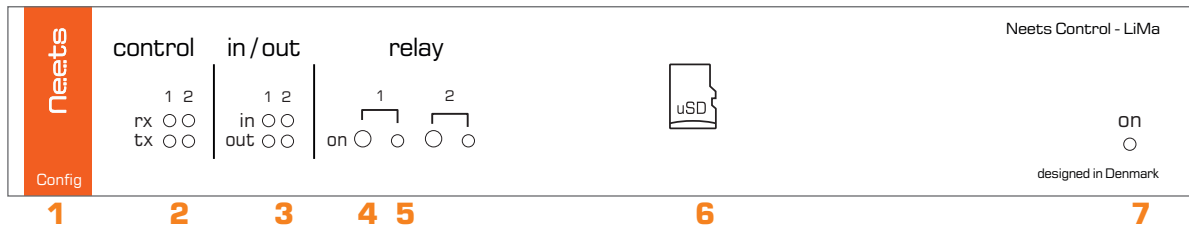
Number:	Description
1	USB configuration input
2	RS-232 status indication
3	IO status indication
4	Relay control button
5	Relay status indication
6	SD card
7	Power and error indication

Front USB Configuration

The USB port is used exclusively for configuring the LiMa from the Neets Project Designer software. It can't be used to control any external devices.

The LiMa must be powered by PoE supply that complies with IEEE 802.3af and 802.3at, type 1 in order to configure it by USB.

The USB connector for connecting to the LiMa is "mini USB B 5P". You can buy this cable on the web (select a USB A to Mini USB B 5P).

RS-232 Status Indication

The RS-232 status LED displays the current status of the RS-232 ports. The LEDs illuminate when there is active communication on the port.
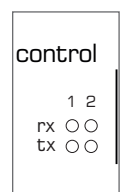
IO Status Indication

The IO status LED displays current status of the I/Os.

When an IO is configured as input, the yellow LED marked "in" will illuminate when the input is high and turn off when the input is low. The green LED marked "out" will remain off.
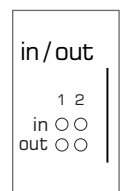
When an IO is configured as output, the green LED marked "out" will illuminate when the output is high and turn off when the output is low. The yellow LED marked "in" will remain off.

Relay Control and Indication

The two test buttons are used to test the built-in relay function. The test buttons are intended for use during installation to control functionality of connected devices. The LEDs will indicate if the relay is activated (green) or not activated (off) during use of the test buttons. They will also illuminate when the relays are controlled by the project in the LiMa.
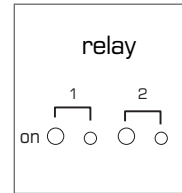
Be aware that you can activate multiple relays at the same time and damage connected equipment if not carefull.

uSD-Card

The uSD-Card stores the LiMa project setup created in the Project Designer software, including general settings and Graphical User Interface. The card should not be removed during normal operation.

To remove the SD Card from the unit, push it GENTLY into the holder about 1mm (by using your finger tip). Release again, and it will slide out.

REMEMBER to remove power from unit (power down) before removing uSD card!

Power and Error Indication

The "on" LED will show the current status of the unit.

| Green	Neets Control - LiMa is on and running normally
Blue	Neets Control - LiMa is starting
Flashing red	The Neets Control - LiMa is in error mode, see section "Error indication" on page 15 for details
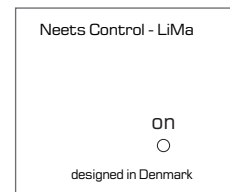
Back

Number:	Description
1	2 x potential-free relays
2	2 x Bi-directional RS-232 or IR transmitter
3	1 x RJ-45 Network (LAN) connector with PoE input
4	2 x digital I/O

Relays

Relays are used when a external control is needed where there must be potential free connection between the control and the LiMa.
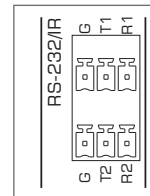
The relays are normally open types. This means that the terminals are not connected when the relay is off.
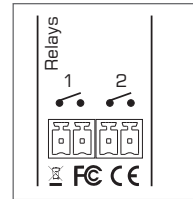
RS-232 Connectors

The onboard RS-232 ports T1 + R1, T2 + R2 can be used for two-way communication with external RS-232 compatible devices. Alternatively all Tx ports can act as IR transmitter ports.

All of the RS-232/IR ports can be configured in the Neets Project Designer software either as RS-232 or as IR emitter.

PIN 2 to RX PIN 3 to TX PIN 5 to GND	TR-Emitter	IR2-Emitter IR1-Emitter
When used as RS-232 transmit port: Connect the device to T1, R1 and GND, as shown here above.	When used as single IR port: Connect the IR emitter to T1 (white striped wire) and GND, as shown above.	When used as dual IR port: Connect the IR1 emitter to T1 (white striped wire) and black wire on IR1 emitter to IR2 emitter (white striped wire), and black wire from IR2 emitter to GND, as shown above.

IO Connectors

The LiMa has two I/O (Inputs/Outputs) which can be configured as either output or input. Each I/O is available for connection to a PIR (movement) sensor, keyboard lock, relays or for other compatible uses. The ports are not potential free; you may need external relays to prevent ground loops depending on your application.
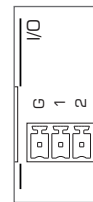
When used as outputs, the I/O ports are active low. When activated, the I/O ports are tied to GND through a FET transistor (also called open drain/collector function). Each I/O can draw up to 24VDC/500mA.

When used as inputs, the applied voltage must be below 1 VDC to be accepted as LOW, and above 4 VDC (but below 24 VDC) to be accepted as HIGH. The inputs are default HIGH and must be connected to ground in order to change state.

LAN Connector with PoE functionality

The LAN connector is used to connect the LiMa to the local area network. The LiMa has Power over Ethernet functionality built into the LAN interface connector.
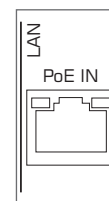
You must connect the LiMa to your LAN if you are using any of the LAN features of the product. The port features auto MDI-X which means that you can connect the LAN port directly to other devices without the need for a LAN switch.

The connector marked with PoE IN is used to power up the entire control system. To power the LiMa, use a PoE enabled switch which complies with IEEE802.3af. Or you can use the PoE Injector (Part number 302-000508).

There are two LEDs on the connector with the following indication:

| Color	Off	On	Blink
Yellow	No Link	Link	Activity
Green	10 Mbit	100 Mbit	

How to connect

PoE power supply to LiMa

To power up the LiMa, the LAN connector marked with PoE IN should be connected to a compliant PoE power supply. Or you can use the PoE Injector (Part number 302-000508). Connect the PoE Injector LAN connector marked "POE" to the LiMa LAN connector marked PoE IN with a RJ45 terminated LAN cable. Connect the PoE Injector connector marked "LAN" to the local network if networking features are required. Connect the PoE Injector to main power supply using the supplied cable:
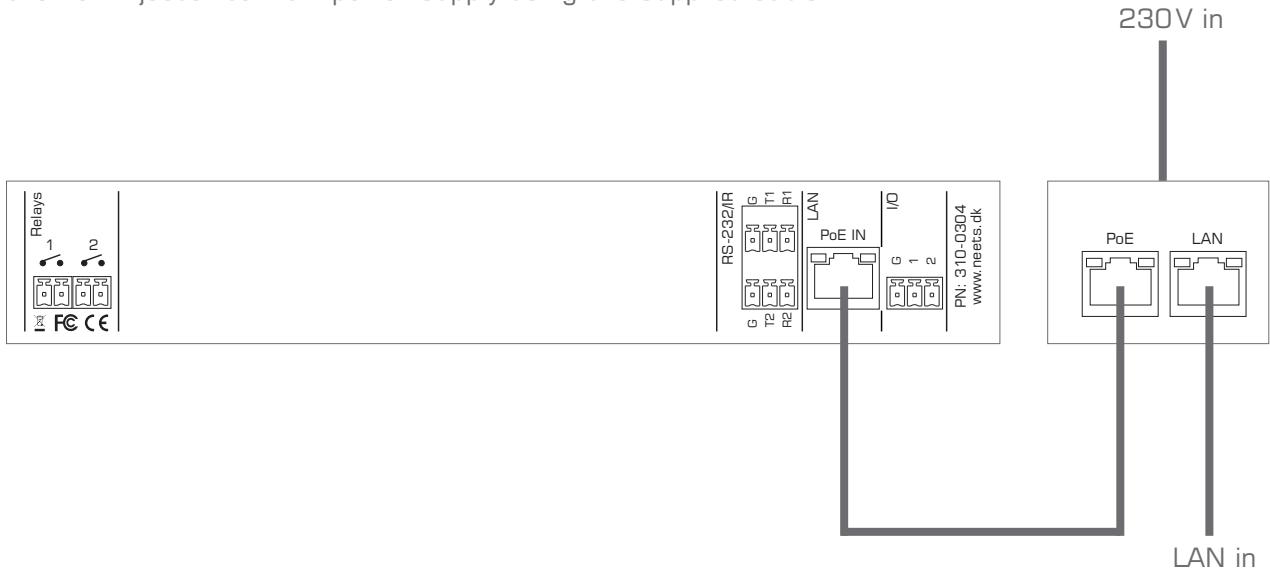
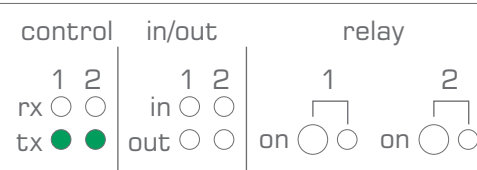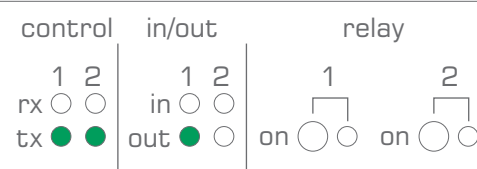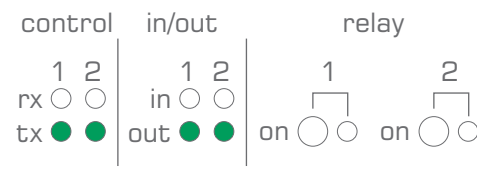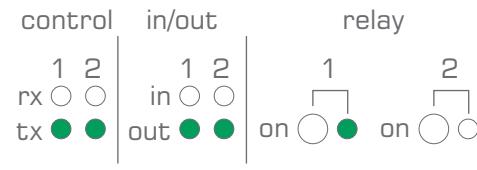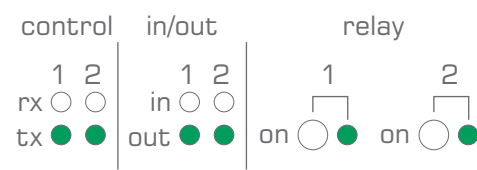Alternatively the LiMa can be connected to a PoE enabled switch:
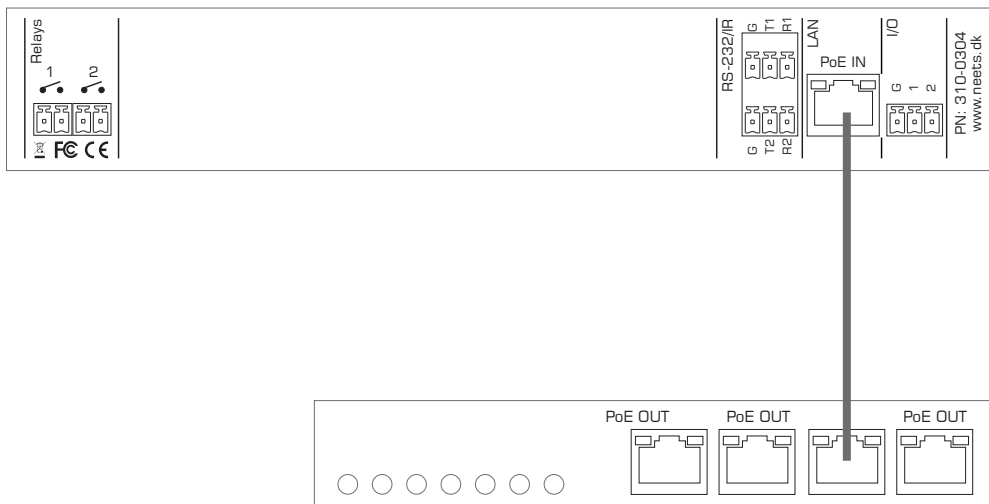
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Troubleshooting

Error indication using LEDs

If there is a fault in either the configuration or the Neets Control - LiMa unit, this will be indicated on the front LED indicators.

In all error modes the power LED will flash red alternating with the IO LEDs. The alternating IO LEDs will indicate type of error. See list below.

LED shows	Description	Solution
control: rx 1○ 2○, tx 1● 2●; in/out: in 1○ 2○, out 1○ 2○; relay: on 1 ○○, on 2 ○○	No project found on the control system or unable to start the project.	° Try to upload the project again. If the problem persists after several successfully uploads, contact Neets or your local distributor.
control: rx 1○ 2○, tx 1● 2●; in/out: in 1○ 2○, out 1● 2○; relay: on 1 ○○, on 2 ○○	Missing SD card or error on SD card.	° Make sure that there is a SD card inserted in the Control System. (Look at the rear panel) ° After doing one of the above, remove the power to the Control System for 20 seconds before reconnecting the power again.
control: rx 1○ 2○, tx 1● 2●; in/out: in 1○ 2○, out 1● 2●; relay: on 1 ○○, on 2 ○○	Unexpected Error.	° Turn off the power to the Control System for 20 seconds before turning the power on again. ° If the error is not resolved contact Neets or your local distributor.
control: rx 1○ 2○, tx 1● 2●; in/out: in 1○ 2○, out 1● 2●; relay: on 1 ○●, on 2 ○○	No contact to Neets network unit.	° Check to confirm that the serial number used in Project Designer matches the Neets extension unit. ° Check the network or RS-232 connection from the Control System to the Neets extension unit.
control: rx 1○ 2○, tx 1● 2●; in/out: in 1○ 2○, out 1● 2●; relay: on 1 ○●, on 2 ○●	Wrong firmware version in Neets extension unit.	° The Neets extension unit has a different firmware than the one in the Control System. ° Please upgrade the firmware by plugging in the USB cable from the Neets extension unit into a PC running Project Designer and follow the instructions.