Neets Control – AlFa II

Installation Manual

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Foreword

The purpose of this document is to describe how to install and configure the Neets Control – AlFa II.

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

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

Neets A/S
Denmark

by E-Mail: Support@Neets.dk

or you may use our contact form at www.neets.dk

Revision list

This document (no: 310-0310-001-007) has the following revision changes:

Author: Date	Description	Pages	Rev
MH: 06-11-14	First release	All	1.00
MH: 17-08-15	New design according to Neets design guide	All	2.00
DB: 07-12-16	Update to tabel	14	3.00

What is in the box?

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

1 x Neets Control - AlFa II
Power cable
Cable relief bracket
Cable relief cover
Phoenix connectors
Screws
Cable binders
Installation manual

Important Safety Instructions

Caution:

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, because 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.

Contents

Description

Neets Control – AlFa II gives you comprehensive yet intuitive control of complex AV systems in auditoriums, large meeting rooms, and conference rooms. All AV systems throughout the room are easily controllable from any mobile touch device. The AlFa II is very well suited for integrating videoconference into meeting rooms and makes it very easy to control both your AV-equipment and videoconference and with a tablet.

By adding NEB keyboard, level control and NEB Expansion to the AlFa II gives you the opportunity to control your AV-equipment and makes it easy to use through the same interface and recognizable custom graphical user interface. Custom graphical user interfaces can be made and configured easily using the new and intuitive Neets Project Designer software. You can drag and drop the devices you need from the extensive device driver library, create custom buttons, or use one of the many templates to make control of the room a breeze.

All connected devices are controlled through a large number of RS-232, LAN and IR ports, making the Neets Control - AlFa II capable of handling even very demanding facilities.
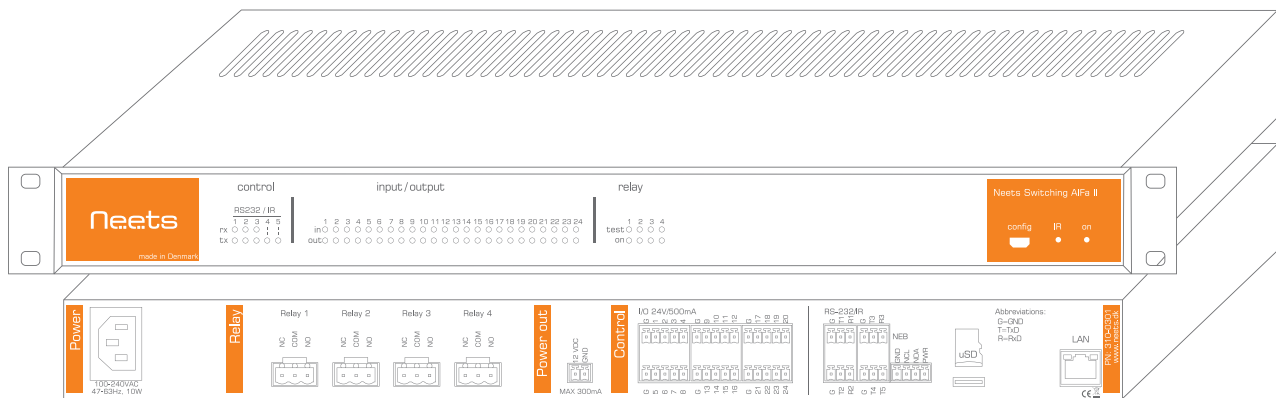
Function description	
RS-232 (Tx+Rx) / IR (controls up to 2 IR devices on each port)	3
RS-232 (Tx) / IR (controls up to 2 IR devices on each port)	2
LAN device control	10
I/O	24
Relays	4
Test buttons	4
NEB Bus (including Extender up to 20m)	1 (5 units)
IR Learn option with Device Editor	Yes

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Specifications

Power input

Voltage	100 VAC – 240 VAC
Frequency	47 Hz – 63 Hz
Power usage	10 W
Connector type	IEC plug

Relay Output

Voltage max	240 VAC
Current max	8 A
Load max AC1	1150 W @ 230 VAC
Load max AC15	500 W @ 230 VAC
Single-phase motor	370 W @ 230 VAC
Connector	3 pin screw block

Power Output

Voltage	12 VDC
Current (fused)	350 mADC

Input / Output

Input trigger low	< 1VDC
Input trigger high	> 4VDC
Output type	Open drain
Isolated output	No
Max voltage load	24VDC
Max current	0.5A
Connector	5 pin screw block

RS-232

Baud rate	1200 – 115200 bit/sec
Data bits	7, 8
Parity	Even, Odd, None
Stop bits	1, 2

IR

Transmit frequency	400 Hz to 500 KHz
IR Learn frequency	1 KHz to 150 KHz

uSD-Card

Type	Micro-SD
Card size min / max	1Gb / 4Gb
File system	FAT 32

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

Approvals

IEC/EN	61000-6-1
IEC/EN	61000-6-2

General

|	
Width (mm)	437 mm / 483 mm
Depth (mm)	141 mm
Height (mm)	44 mm (1U)
Weight kg	1.9 kg
Shipping weight	2.2 kg
Shipping dimension (W/D/H)	530 mm / 230 mm / 80 mm
Storage temperature	-20 °C to 50 °C
Storage moisture	Non-condensing
Operation temperature	0 °C to 30 °C
Operation moisture	Non-condensing

Connections on AlFa II

Connectors and indicators are available on the front and rear panels. These are shown below:

Front:
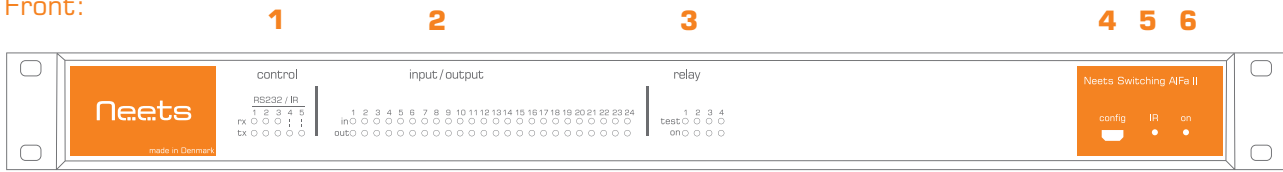
Number:	Description
1	Indication for transmitting or receiving on RS-232 or IR
2	Indication for Input and Output on rear panel (I/O)
3	Relay indication and test buttons
4	Mini USB for programming
5	Input for IR learning
6	Power indication

Rear:
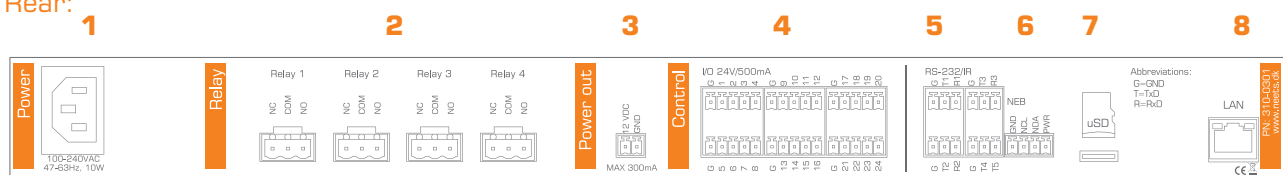
Number:	Description
1	110-230 VAC power in
2	4 x potential-free relays
3	12 VDC output power
4	24 x input/output connectors
5	5 x RS-232 or IR connectors (3 x bidirectional RS-232)
6	1 x Neets Extension Bus (NEB)
7	1 x µSD card
8	1 x RJ-45 Network (LAN) connector

Hardware installation

The AlFa II is designed to be mounted in a rack or as a stand-alone unit on a desk, drawer or other stable surface.

Always allow at least 40 mm of free space above the unit as air circulation around the unit is needed for reliable performance. If installed in a closed environment, forced air circulation may be needed.
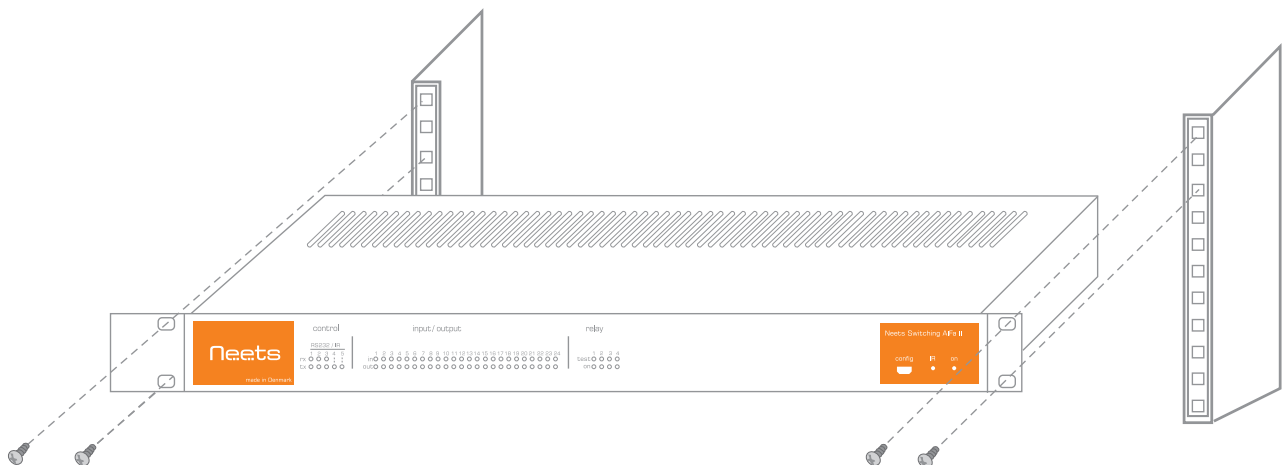
Mounting the unit in a 19" rack

The AlFa II can easily be installed in a 19" rack.

Due to the standard 1U height, low weight and small mounting depth the AlFa II can be mounted from the rack front without the use of a rack shelf or rear supporting rails.

1: Mount two clip nuts on each side of the rack as shown below:
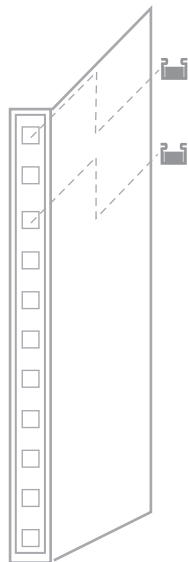
2: Slide the AlFa II into the rack and secure with the M6x10 screws.

3: The unit is now ready to be connected with all peripherals as needed.

Mounting cable relief bracket and covers

To secure heavy duty cables at the relay receptacles a cable relief bracket and cover are supplied with the AlFa II.

Secure the cable relief bracket to the AlFa II with the supplied M4x6mm screws. Insert your cable in the supplied screw terminal connector and insert this connector into the ppropriate relay receptacle in the AlFa II.

Secure the cables to the cable relief bracket with supplied cable binders.

Finally, mount the cable relief cover over the cable relief bracket and secure with supplied M4x45mm screw.
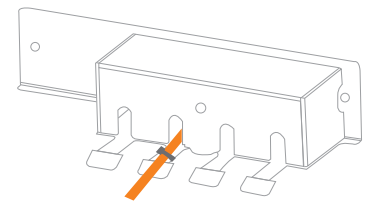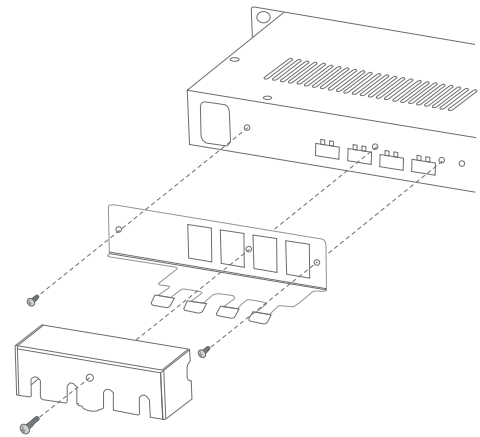
Connections and Controls

AC Line

Connect the AlFa II to the AC line supply using the supplied power cable. The cable will be equipped with a line socket connector for use in the country of sale.

The AlFa II incorporates a universal mains power supply which accepts AC line input from 100 V to 240 V.

Relays

Relays allow the option of NO (Normal Open) and the NC (Normal Close) for greatest flexibility.
An LED for each relay is located on the front panel. When the LED illuminates green, it indicates the COM is connected to NO.

You can connect cables directly to the AlFa II using the supplied terminal block connectors for each relay. Use the supplied cable relief brackets to fix the cables with a cable tie to prevent accidental disconnection of the cables. (See section Mounting cable relief bracket and covers on page 6.)

If you want to connect and conveniently switch AC power for external equipment, install the Neets IEC Mains Adaptor (306-0015, sold separately) instead of the terminal block and cable relief brackets.
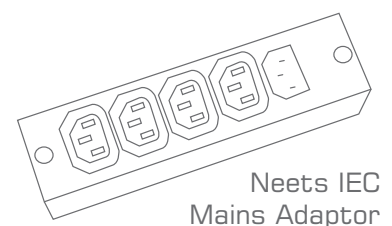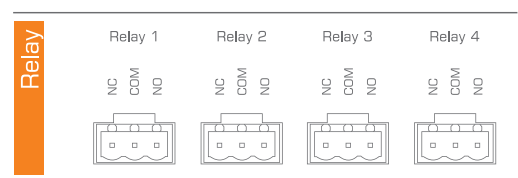
Neets IEC
Mains Adaptor

Neets

Power out

With the power out port it is possible to supply power to external devices that use a 12 V direct current supply voltage. For example, it can be used to supply the Neets I/O keyboard for LED indication. The output is overload protected with a self-resetting fuse.
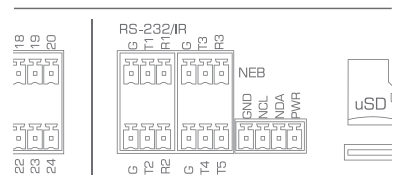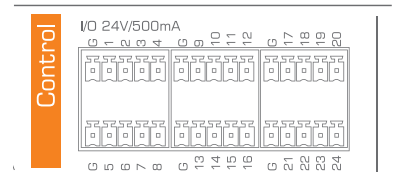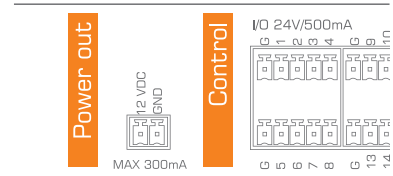
I/O ports

The Neets Control – AlFa II has 24 I/O (Inputs/Outputs) available that can be configured as either output or input. They can be used for an external control keypad, PIR (movement) sensor, keyboard lock, extra relays, or other compatible uses. The ports are not potential free; you may need external relays to prevent ground loops.
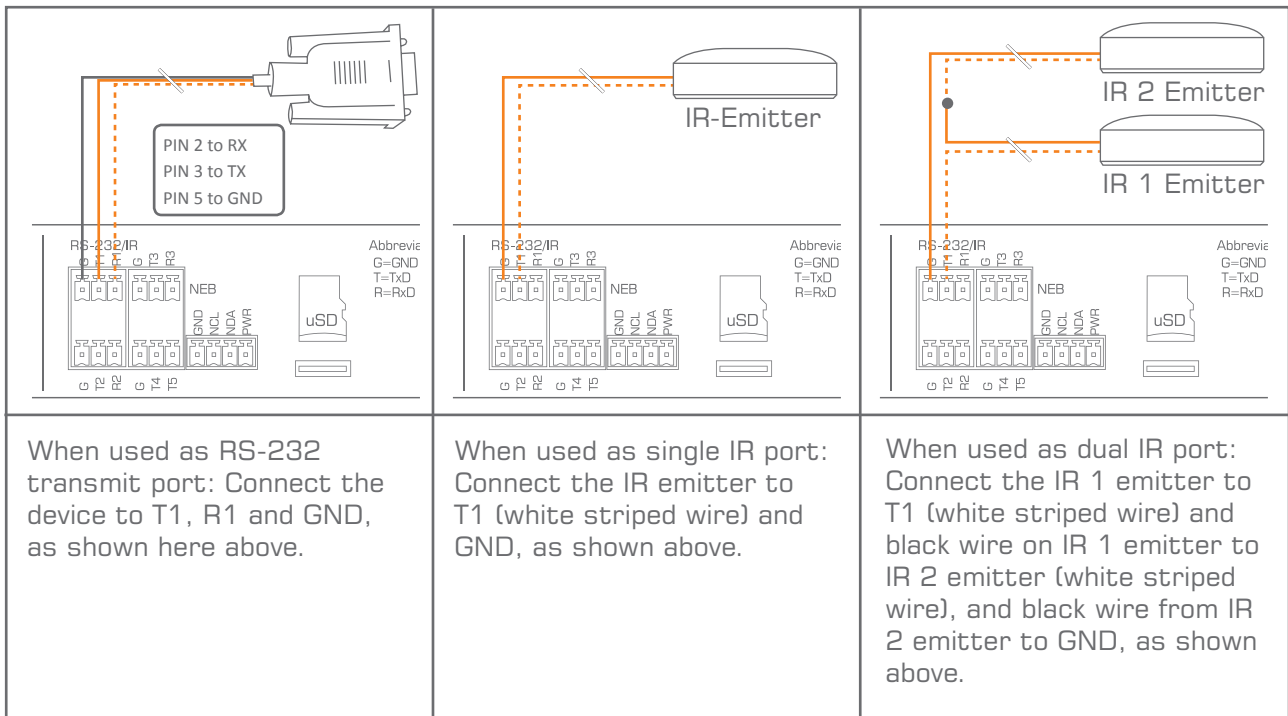
When used as outputs the I/O ports are active low. When activated, the I/O ports are tied to GND through a FET transistor (also called open drain/collector function). Each I/O can draw up to 24VDC/500mA. For each I/O there is a LED on the front of the AlFa II indicating the current output state. The LED is on when the output is active (the output is connected to GND).

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. For each I/O there is a LED on the front of the AlFa II indicating the current input state. When the LED lights orange it indicates that the input is high; when the LED is off the input is low.

RS-232/IR ports

The onboard RS-232 ports (T1, R1, T2, R2, T3, R3, T4 and T5) are used for one- or two-way communication. Ports 1-3 are two-way: (transmit and receive); ports 4-5 are one-way (transmit only). Two way ports are used for devices on which you want to use reply (e.g. your projector). All of the RS-232/IR ports can be configured in the software either as RS-232 or as IR emitter.

PIN 2 to RX
PIN 3 to TX
PIN 5 to GND

IR-Emitter

IR 2 Emitter

IR 1 Emitter

RS-232/IR

Abbrevia
G=GND
T=TxD
R=RxD

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 IR 1 emitter to T1 (white striped wire) and black wire on IR 1 emitter to IR 2 emitter (white striped wire), and black wire from IR 2 emitter to GND, as shown above.

NEB port

The AlFa II has a built-in NEB (Neets Extension Bus). This port is used to add up to 5 NEB devices (e. g. two Keypads, two Level Controls and one Expander). The NEB port includes an NEB extender that allows up to 40m of separation between the AlFa II and your NEB devices. However, you MUST connect NEB extender module (Neets P/N 310-0005) at the end for your NEB units.
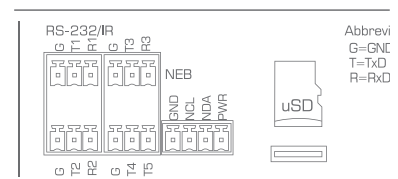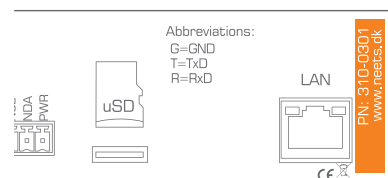

⚠ The AlFa II has a built-in NEB extender; therefore, you need an extender for all your NEB units as well. ⚠

uSD-Card

The uSD-Card stores the AlFa II 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! ⚠

LAN

The network connector integrates the system into the local area network.

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

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

Factory default IP settings is:

IP address: 192.168.254.253
Subnet: 255.255.255.0
10/100Mbit: Auto
DHCP: Disabled

Test buttons

The four 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.

Front panel USB

The USB port (labeled "config" on the front) is used exclusively for configuring the Neets Control – AlFa II from the Neets Project Designer software. It cannot be used to control any external devices.

The USB port cannot power the control system while configuring, so always remember to connect the AC power. The USB connector for connecting to the Neets Control – AlFa II is type "mini USB B 5P". (It is available on the web as a USB A to Mini USB B 5P).

IR receiver

The IR learner can be connected directly to the Neets Device Editor software through the USB port. This enables learning of IR codes from your existing IR remote for easy configuration on-site or at your desk.
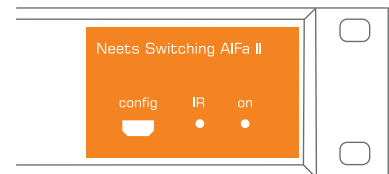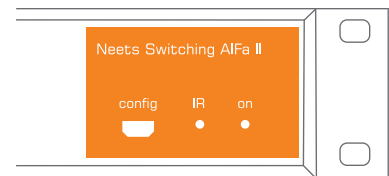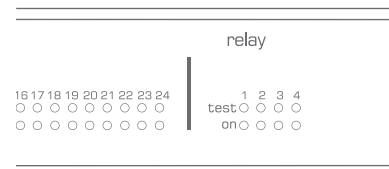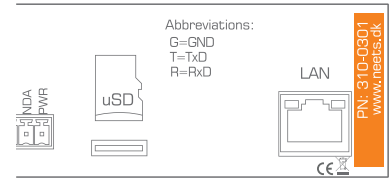
Troubleshooting

On the front of the unit you will find LED indicators used for error indication (the "on" LED and input/output LED number 1-6).
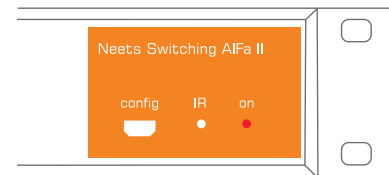
The "on" LED can have the following indications:
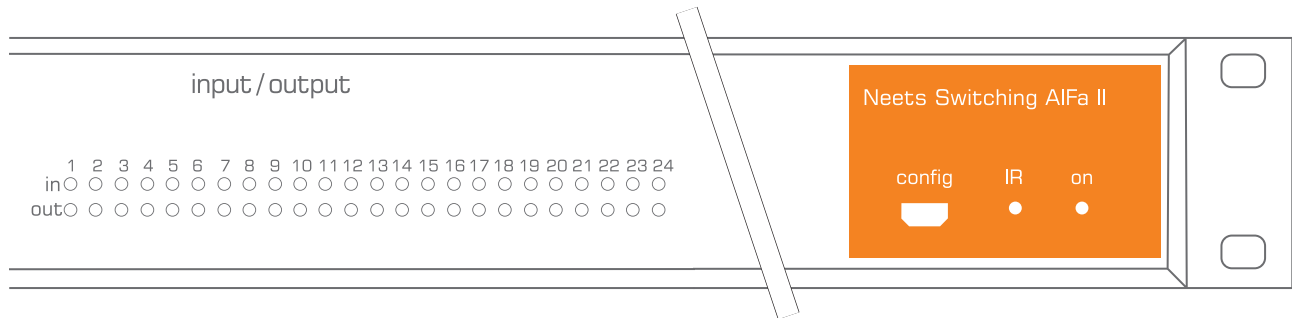
Description	"on" LED behavior
System starting	Orange non-flashing
System running	White non-flashing
System error	Red flashing
Firmware upgrade in progress	Orange non-flashing

Error indication using LEDs

If you experience a system error, the front panel "On" LED indicator will flash red together with some of the input/output LED indicators. You can find the error type and possible solutions below.

LED shows	Description	Solution
	No connection to one or more NEB units.	o Check that the NEB units used in the project are connected. o Make sure that a NEB extender is used at the end of the connected NEB unit. After doing one of the above, remove the power to the control system for 20 sec before reconnecting the power again.
	No project found on the control system	o Try to upload the project again. o If the problem persists after several successful uploads, contact Neets or your local distributor.
	Missing SD card or error on SD card	o Make sure that there is a SD card inserted in the control system. (Look at the rear panel.) After doing the above, turn off the power to the control system for 20 seconds before turning the power on again.

LED shows	Description	Solution
input / output 1 2 3 4 5 6 7 8 9 10 11 12 in ● ● ● ● ○ ○ ○ ○ ○ ○ ○ ○ out ● ● ● ● ○ ○ ○ ○ ○ ○ ○ ○	Unexpected Error	o Turn off the power to the control system for 20 sec before turning the power on again. After doing one of the above, remove the power to the control system for 20 sec before reconnecting the power again.
input / output 1 2 3 4 5 6 7 8 9 10 11 12 in ● ● ● ● ● ○ ○ ○ ○ ○ ○ ○ out ● ● ● ● ● ○ ○ ○ ○ ○ ○ ○	No contact to Neets extension unit	o Check to confirm that the serial number used in Project Designer matches the Neets extension unit. o Check the network or RS-232 connection from the control system to the Neets extension unit.
input / output 1 2 3 4 5 6 7 8 9 10 11 12 in ● ● ● ● ● ● ○ ○ ○ ○ ○ ○ out ● ● ● ● ● ● ○ ○ ○ ○ ○ ○	Wrong firmware version in Neets extension unit	o The Neets extension unit has a different firmware than the one in the control system. o 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.