

# Audio amplifier

312-0001, 312-0002 and 312-0003



**How does it work?**

**Foreword:**

The purpose of this document is to describe how to install and configure the 3 versions of the Neets Audio Amplifier.

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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 dealer or:

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by E-Mail: [Support@Neets.dk](mailto:Support@Neets.dk)

or you may use our contact form at [www.neets.dk](http://www.neets.dk)

**Revision list:**

<b>Author: Date</b>	<b>Description</b>	<b>Pages</b>
<b>TSA 21/01-09</b>	First release.	All
<b>TSA 06/06-09</b>	Small adjustments to make things more clear.	13, 14
<b>TSA 07/06-09</b>	Firmware upgrade done image, was wrong image.	6
<b>TSA 07/06-09</b>	Image and text on page changed.	19
<b>JML 23/06-09</b>	Added description of how to ask for current state and minor changes in examples.	15,16
<b>SDV 27/01-10</b>	Text added	5
<b>SDV 15/02-10</b>	New pictures	All
<b>TSA 08/06-11</b>	Removed wake on signal	All

From serialnumber (and forward) there is no longer the possibility to use Wake on Signal:

312-0001: 110700050

312-0002: 100800450

312-0003: 090900091

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**Description:**

The Neets Audio Amplifier version 1-3 are all intended for single room applications, they may be used for other things but the idea behind them is single room applications (ex. Class- or meeting-room).

All 3 versions are high performing class “D” amplifiers, and they can all be controlled over RS-232. Bellow you will find the specifications for the 3 models.



Version 1



Version 2



Version 3

Description	Version 1	Version 2	Version 3
<b>Part number#:</b>	<b>312-0001</b>	<b>312-0002</b>	<b>312-0003</b>
Output power in 8 ohm RMS	2*15 Watt	2*25 Watt	2*25 Watt
Class of operation	D	D	D
Short circuit safe speaker outputs	Yes	Yes	Yes
Unbalanced line input (0.316 VRMS, -10dBV)	3	4	3
Balanced line input (0.316 VRMS, -10dBV)	0	0	1
Preamplifier out (Level control depending on volume settings)	0	0	1
Microphone input (Phantom power possible 24VDC)	0	0	1
Direct connection for Mute button (Active pulse < 0.2 VDC)	Yes	Yes	Yes
Direct connection for volume up/down (Active pulse < 0.2 VDC)	Yes	Yes	Yes
Direct connection for input selection (Active pulse < 0.2 VDC)	Yes	Yes	Yes
RS-232 Control	Yes	Yes	Yes
RS-232 with loopthrough	No	Yes	Yes
LAN Loopthrough (LAN to RS-232)	0	0	3
LAN control	No	No	Yes
Homepage control (Thru web browser)	No	No	Yes
Channel select	Yes	Yes	Yes
Channel preset gain	Yes	Yes	Yes
Channel preset Balance	Yes	Yes	Yes
Channel preset Bass	Yes	Yes	Yes
Channel preset Treble	Yes	Yes	Yes
Master Volume	Yes	Yes	Yes
Master Bass	Yes	Yes	Yes
Master Treble	Yes	Yes	Yes
Mute	Yes	Yes	Yes

### What is class “D” amplifier?:

A switching amplifier or class-D amplifier is an electronic amplifier which, in contrast to the active resistance used in linear mode AB-class amplifiers, uses switching mode of transistor to regulate power delivery. The amplifier, therefore, features the high power efficiency (low energy losses), which additionally results in lower weight by eliminating the bulky heat sinks. Additionally, if voltage conversion is necessary, the on-the-way high switching frequency allows the bulky audio transformers to be replaced by small inductors. Low pass LC-filtering smoothes the pulses out and restores the signal shape on the load.

### What is line level on our amplifier?:

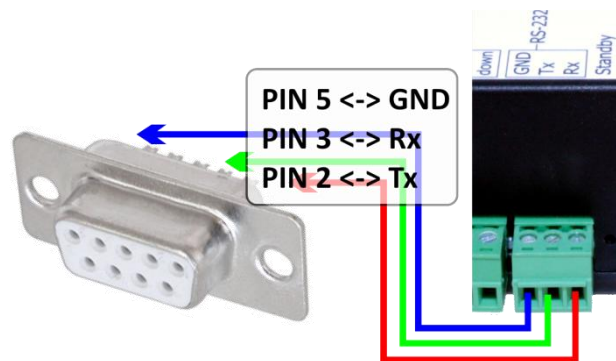
Line level is a term used to describe the strength of an audio signal used to transmit analog sound information between audio components such as CD and DVD players, TVs, audio amplifiers, and mixing consoles, and sometimes MP3 players. In contrast to line level, there are weaker audio signals, such as those from microphones and instruments pickups, and stronger signals, such as those used to drive headphones and loudspeakers. The strength of the various signals does not necessarily correlate with the output voltage of a device; it also depends on the source's output impedance, or the amount of current available to drive different loads. The most common nominal level for consumer audio equipment is  $-10$  dBV ( $0,316 V_{RMS}$ ), and the most common nominal level for professional equipment is  $4$  dBV.

### Phantom power:

Phantom power (labeled as  $+48$  V on some audio equipment - also  $+12$  V or  $+24$  V in some applications) is a method that sends a DC electrical voltage through microphone cables. It is best known as a common power source for condenser microphones, though many active DI boxes also use it. In Neets Audio Amplifier version 3 we use  $24 V_{DC}$  as phantom power.

### RS-232 cable connections:

To connect the Audio Amplifier you must wire the RS-232 cable as shown here to the right. This is a Female 9 pin SUB-D connector, what will fit into a standard computer RS-232 port, or any USB to RS-232 converter.



### RS-232 loopthru:

312-0002 and 312-0003 has the possibility to make “RS-232 loopthru” by this means, if the audio amplifier is connected to one of Neets Control systems (all systems except Neets Control QueBec) you will get an “extra” RS-232 port.

You control the audio amplifier thru RS-232 port 1 (connect this port to the control system), and you can connect (e.g. a projector) to RS-232 port 2 on the audio amplifier. When doing so and setting the system correct up in the “Neets Product Configurations Software” you will be able to control the audio amplifier and the projector from one (1) comport on the control system.

Please be aware that the first time you set up the system with a Neets Control system, the power must be connected to the Neets Control system **AFTER** the Audio Amplifier.

### LAN to RS-232 loopthru:

The 312-0003 has the possibility to make “LAN to RS-232 loopthru” by this means that if you use our control system Neets Control – EU, professional (P/N#: 307-0002) and you connect both the Audio amplifier and the Neets Control – EU, professional to a LAN network, you will get additional 3 RS-232 ports to control external devices (located on the audio amplifier). So by using this function you will, on the Neets Control – EU, professional get in total 5 RS-232 ports, and on top of that have control over the audio amplifier.

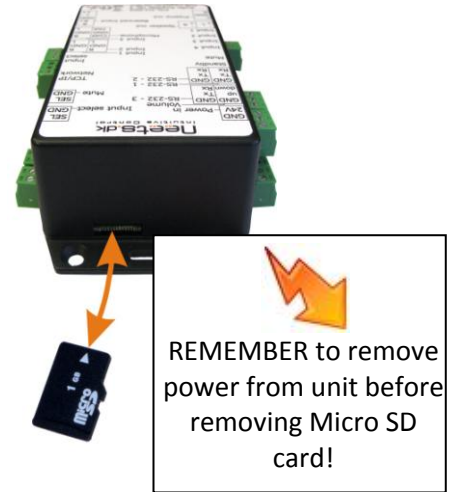
**Firmware upgrade of units:**

This section describes how to firmware upgrade the units. On 312-0003 you can upgrade the unit by using the homepage (go to [maintenance] page and use the upgrade firmware). On all units you can use the procedure as bellow.

First you need to go to [www.neets.dk](http://www.neets.dk) and find the newest version (or the version you want). The filename of the firmware are “aud\_0100.bin” for version 1.00 (version 2.03 will be named “aud\_0203.bin”).

Then you need to have a Micro SD to USB converter, you can get those from the internet (search google for “buy micro SD to USB converter” they cost from 10EUR) or by contacting Neets or you local distributor.

- When you have the correct firmware and a converter to copy the file to the Micro SD card from your computer you are ready to firmware upgrade you unit.
- First you **MUST** disconnect the power from the audio amplifier.
- Then remove the SD Card from the unit by pushing the SD Card **gently** into the unit about 1mm (either by using your finger tips or a flat screwdriver) and then let go and it will slide out.
- Place the Micro SD card into the adapter (e.g. USB adapter).
- Connect the adapter to your computer.
- Browse to the root of the folder of you SD card (e.g. : L:\) and copy the file you have downloaded to the root folder (in this case “aud\_0100.bin”). Please make sure that you do not delete anything else from the card.



How to remove the SD-Card



SD Card insert to computer

- Use safe way of removing the Micro SD card from your computer.
- Insert the Micro SD card to the unit (while power still is off)
- Connect power
- Wait for LED to indicate “firmware done” (see the picture here to the right for LED indication). Input 1 will light up, while Standby and mute will make “light show”
- Disconnect power and reconnect power. YOU ARE DONE...!

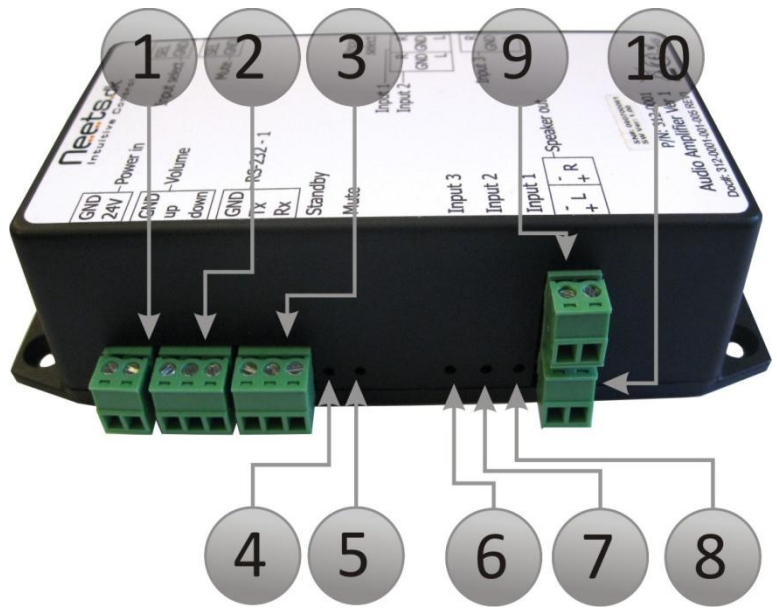


Firmware upgrade done..!

**Connections on units – 312-0001:**

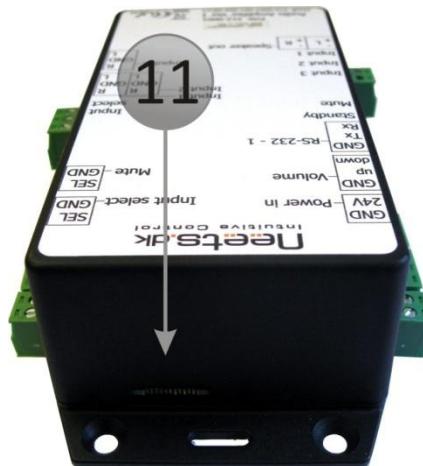
**Left side:**

Number	Description
1:	Power in
2:	Volume control
3:	RS-232 control port
4:	Standby LED
5:	Mute LED
6:	Input 3 LED
7:	Input 2 LED
8:	Input 1 LED
9:	Right speaker
10:	Left speaker



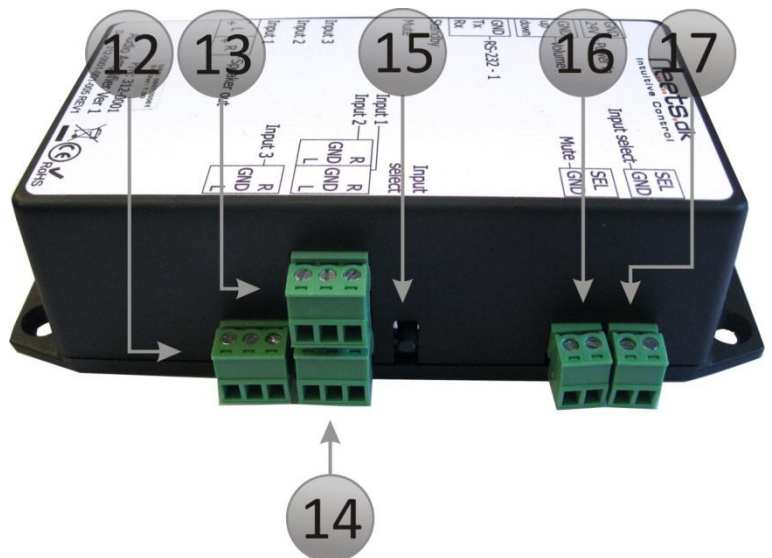
**Top end:**

Number	Description
11:	Micro SD-Card



**Right side:**

Number	Description
12:	Line Input 3
13:	Line Input 2
14:	Line Input 1
15:	Input select switch
16:	Mute input
17:	Input select





## Specifications 312-0001:

### Output (speakers):

Power (@ 8 ohm):	2 * 15 Watt
Connections (2 pcs.):	2 pin 3.81mm screw block
Speaker impedance:	8 ohm ( $\Omega$ )
THD+N @ 25 Watt 8 ohm:	< 0.25% (@1KHz - 10KHz)
THD+N @ 1 Watt 8 ohm:	< 0.1% (@1KHz)
Output efficiency:	up to 90%

### Audio inputs:

Unbalanced inputs:	3
Connectors:	3 pin 3.82mm screw block
Input level (all inputs):	0VRMS–2VRMS Nominal: 0.316 VRMS (-10dBV)
Channel separation:	> 90 dB
Input impedance:	> 15 K ohm ( $\Omega$ )

### Direct buttons control

Buttons functions:	Input sel, Mute, Volume
Button mode:	Momentary
Activation of button:	Low < (GND + 0.2 VDC)

### RS-232 Remote Control

Control connected to:	RS-232-1
Baud rate:	9600
Data bits:	8
Stop bits:	1
Parity:	None
Protocol:	Neets

### SD-Card (Storage card)

Type:	Micro – SD, Standard type
Card:	Max size 1GB
File system:	FAT 16

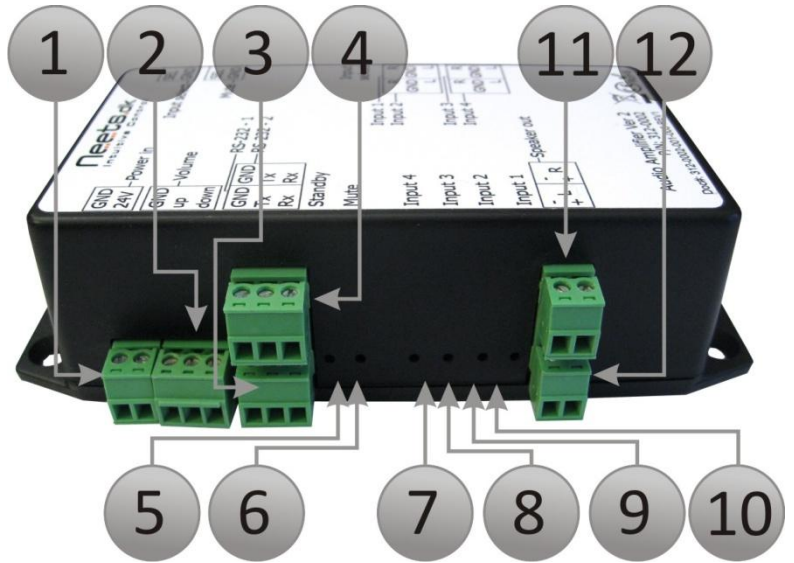
### General

Power input (AC):	100 – 240 VAC (47-63 Hz)
Power input (DC):	24 VDC 2.5A (Regulated)
Storage temperature:	-30°C to 70°C (Non condensing)
Operating temperature:	0°C to 45°C (Non condensing)
Dimension (without connectors):	70mm (2.7") x 150mm (5.9") x 40mm (1.6")
Weight (no PSU):	250gramm (0.5 lbs)
Weight (Shipping):	1000g (2.2 lbs)

**Connections on units – 312-0002:**

**Left side:**

Number	Description
1:	Power in
2:	Volume control
3:	RS-232 control port 1
4:	RS-232 control port 2
5:	Standby LED
6:	Mute LED
7:	Input 4 LED
8:	Input 3 LED
9:	Input 2 LED
10:	Input 1 LED
11:	Right speaker
12:	Left speaker



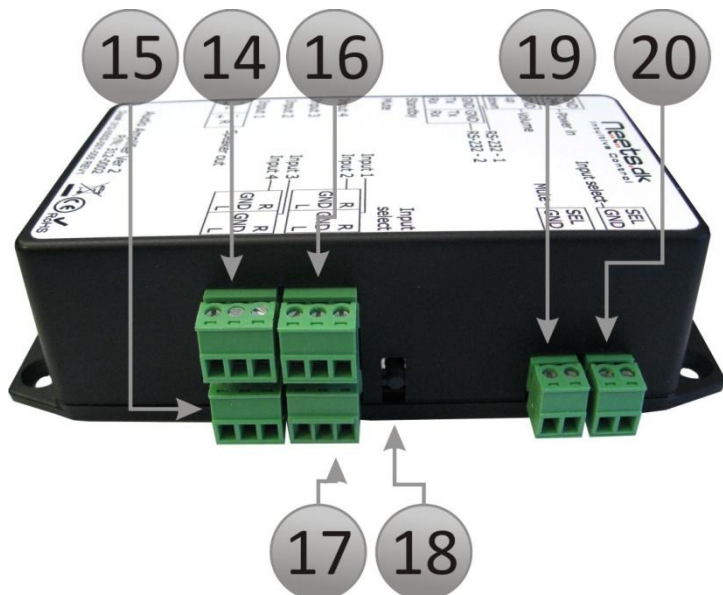
**Top end:**

Number	Description
13:	Micro SD-Card



**Right side:**

Number	Description
14:	Line Input 4
15:	Line Input 3
16:	Line Input 2
17:	Line Input 1
18:	Input select switch
19:	Mute input
20:	Input select



## **Specifications 312-0002:**

### **Output (speakers):**

Power (@ 8 ohm):	2 * 25 Watt
Connections (2 pcs.):	2 pin 3.81mm screw block
Speaker impedance:	8 ohm ( $\Omega$ )
THD+N @ 25 Watt 8 ohm:	< 0.35% (@1KHz - 10KHz)
THD+N @ 1 Watt 8 ohm:	< 0.1% (@1KHz)
Output efficiency:	up to 90%

### **Audio inputs:**

Unbalanced inputs:	4
Connectors:	3 pin 3.82mm screw block
Input level (all inputs):	0VRMS–2VRMS Nominal: 0.316 VRMS (-10dBV)
Channel separation:	> 90 dB
Input impedance:	> 15 K ohm ( $\Omega$ )

### **Direct buttons control**

Buttons functions:	Input sel, Mute, Volume
Button mode:	Momentary
Activation of button:	Low < (GND + 0.2 VDC)

### **RS-232 Remote Control**

Control connected to:	RS-232-1
Baud rate:	9600
Data bits:	8
Stop bits:	1
Parity:	None
Protocol:	Neets

### **RS-232 loophtru:**

#### **External device:**

Baud rates:	1200 – 115200 bits/sec
Parity:	Even, Odd, None
Data bits:	7 – 8
Stop bits:	1, 1½, 2

#### **Other information:**

Control connected to:	RS-232-1
Device connected to:	RS-232-2
Control possible to use:	All Neets (minus: Neets Control QueBec)

### **SD-Card (Storage card)**

Type:	Micro – SD, Standard type
Card:	Max size 1GB
File system:	FAT 16

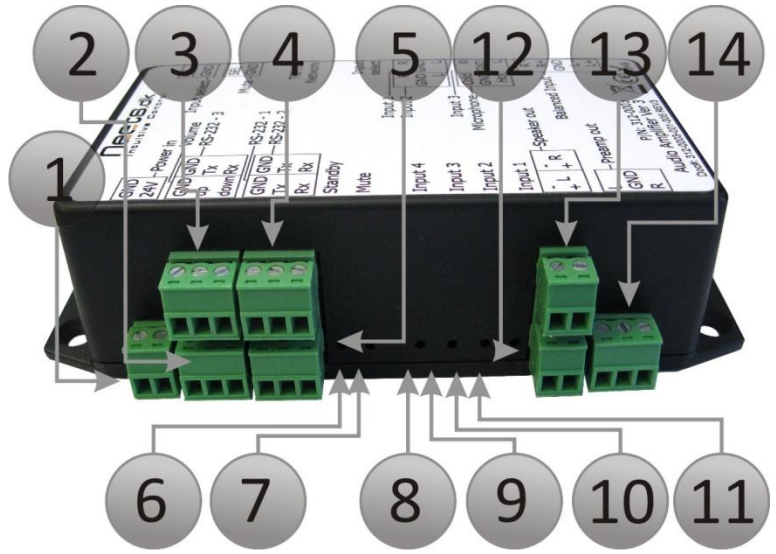
### **General**

Power input (AC):	100 – 240 VAC (47-63 Hz)
Power input (DC):	24 VDC 2.5A (Regulated)
Storage temperature:	-30°C to 70°C (Non condensing)
Operating temperature:	0°C to 45°C (Non condensing)
Dimension (without connectors):	70mm (2.7") x 150mm (5.9") x 40mm (1.6")
Weight (no PSU):	250gramm (0.5 lbs)
Weight (Shipping):	1000g (2.2 lbs)

**Connections on units – 312-0003:**

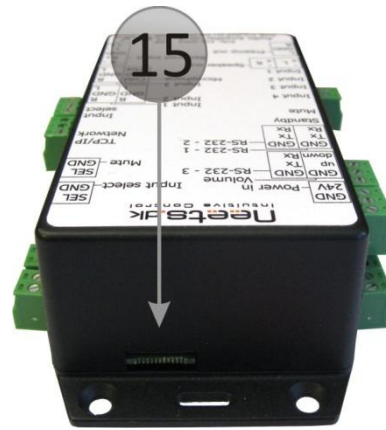
**Left side:**

Number	Description
1:	Power in
2:	Volume control
3:	RS-232 control port 3
4:	RS-232 control port 2
5:	RS-232 control port 1
6:	Standby LED
7:	Mute LED
8:	Input 4 LED
9:	Input 3 LED
10:	Input 2 LED
11:	Input 1 LED
12:	Left speaker
13:	Right speaker
14:	Preamplifier out



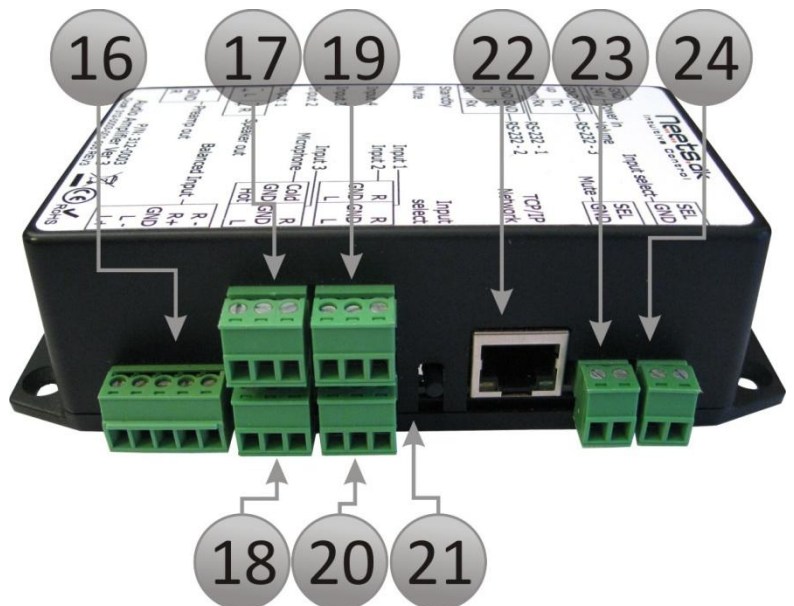
**Top end:**

Number	Description
15:	Micro SD-Card



**Right side:**

Number	Description
16:	Balanced line Input 4
17:	Microphone input
18:	Line Input 3
19:	Line Input 2
20:	Line Input 1
21:	Input select switch
22:	LAN (network) connector
23:	Mute input
24:	Input select



## **Specifications 312-0003:**

### **Output (speakers):**

Power (@ 8 ohm):	2 * 25 Watt
Connections (2 pcs.):	2 pin 3.81mm screw block
Speaker impedance:	8 ohm ( $\Omega$ )
THD+N @ 25 Watt 8 ohm:	< 0.35% (@1KHz - 10KHz)
THD+N @ 1 Watt 8 ohm:	< 0.1% (@1KHz)
Output efficiency:	up to 90%

### **Audio inputs:**

Unbalanced inputs:	3
Connectors:	3 pin 3.82mm screw block
Balanced inputs:	1
Connectors:	5 pin 3.82mm screw block
Input level (all inputs):	0VRMS–2VRMS Nominal: 0.316 VRMS (-10dBV)
Channel separation:	> 90 dB
Input impedance:	> 15 K ohm ( $\Omega$ )

### **Audio output (preamp out)**

Number of outputs:	1
Connectors:	3 pin 3.82mm screw block
Output level:	0VRMS – 0.316 VRMS
Channel separation:	> 90 dB
Output impedance:	< 500 ohm ( $\Omega$ )

### **Microphone input**

Number of inputs:	1
Phantom power:	24 VDC
Input sensitivity:	1.5mV/Pa to 5mV/Pa +/- 3dB(Open circuit @ 1KHz)

### **RS-232 Remote Control**

Control connected to:	RS-232-1
Baud rate:	9600
Data bits:	8
Stop bits:	1
Parity:	None
Protocol:	Neets

### **RS-232 loopthru:**

#### **External device:**

Baud rates:	1200 – 115200 bits/sec
Parity:	Even, Odd, None
Data bits:	7 – 8
Stop bits:	1, 1½, 2

#### **Other information:**

Control connected to:	RS-232-1
Device connected to:	RS-232-2
Control possible to use:	All Neets (minus: Neets Control QueBec)

### **Network (LAN)**

Speed:	10/100Mbit
Duplex:	Half and full
DHCP:	Default set to OFF
Default IP address	192.168.254.252
Homepage address:	80, non changeable
TCP Control port:	5000, non changeable
Access RS-232-1 port:	5010, non changeable
Access RS-232-2 port:	5011, non changeable
Access RS-232-3 port:	5012, non changeable

### **SD-Card (Storage card)**

Type:	Micro – SD, Standard type
Card:	Max size 1GB
File system:	FAT 16

### **General**

Power input (AC):	100 – 240 VAC (47-63 Hz)
Power input (DC):	24 VDC 2.5A (Regulated)
Storage temperature:	-30°C to 70°C (Non condensing)
Operating temperature:	0°C to 45°C (Non condensing)
Dimension (without connectors):	70mm (2.7") x 150mm (5.9") x 40mm (1.6")
Weight (no PSU):	250gramm (0.5 lbs)
Weight (Shipping):	1000g (2.2 lbs)

## Special functions on 312-0003:

### Homepage control:







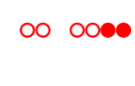


The unit has the possibility to be controlled thru a homepage, simple go to the IP address of the unit in a web browser, and you will see the homepage as shown here.

You can either make changes that work immediately (e.g. volume up/down, input select) or you can make default settings. To change immediately changed settings to default, simple press the "Save as default" button in lower right hand corner.

Please remember the default IP address is 192.168.254.252, username and password is both "Admin" case sensitive.



## Fault finding:

Fault:	Solution
<b>LED indication on Audio amplifier:</b>	
Speaker output Shortcut 	Check you speaker cable, and reboot unit. Have you been playing to loud?
Firmware update done 	There has been put new firmware on the unit. Please reboot unit
No Micro SD Card found 	Did you remove the Micro SD card? Then insert it again.
Unexpected system error 	Please contact your distributor or Neets technical support.
No serial number in audio amplifier 	Please contact your distributor or Neets technical support.
No firmware and no Micro SD card found 	Copy firmware to Micro SD card and insert Micro SD card, and connect power
No firmware and no firmware on Micro SD 	Copy firmware to Micro SD card and insert Micro SD card, and connect power
Firmware upgrading 	WAIT, and do NOT disconnect power
Firmware upgrading 	WAIT, and do NOT disconnect power

## Amplifier Communications protocol

### RS-232 Remote Control port settings

RS-232 port: 1  
 Baud rate: 9600  
 Data bits: 8  
 Stop bits: 1  
 Parity: None  
 Protocol: As bellow

### Network LAN port settings

TCP port: 5000  
 Protocol: As bellow

### Admin audio

Description	Syntax	Data	Read/Write	Default
Select input 1 – 4	NEAMP1,INPUT=<data>	1 – 4 (3 in 312-0001)	R/W	1
Set volume	NEAMP1,VOL=<data>	0 – 51	R/W	0
Set bass	NEAMP1,BASS=<data>	-7 – 7	R/W	0
Set treble	NEAMP1,TREBLE=<data>	-7 – 7	R/W	0
Set balance	NEAMP1,BAL=<data>	-79 – 79	R/W	0
Mute	NEAMP1,MUTE=<data>	ON , OFF	R/W	OFF
Power state (When the amp are turned off it restores it defaults values)	NEAMP1,POWER=<data>	ON , OFF	R/W	OFF

### Input 1-4

Description	Syntax	Data	Read/Write	Default
Preset input 1 – 4, bass	NEAMP1,INPUT:<input>,BASS=<data>	-7 – 7	R/W	0
Preset input 1 – 4, treble	NEAMP1,INPUT:<input>,TREBLE =<data>	-7 – 7	R/W	0
Preset input 1 – 4, gain	NEAMP1,INPUT:<input>,GAIN=<data>	0 – 15	R/W	0
Preset input 1 – 4, balance	NEAMP1,INPUT:<input>,BAL=<data>	-79 – 79	R/W	0

### Microphone

Description	Syntax	Data	Read/Write	Default
Microphone gain	NEAMP1,MICGAIN=<data>	0 – 63	R/W	25
Phantom power	NEAMP1,PHANTOMPOWER=<data>	ON, OFF	R/W	OFF

### Admin

Description	Syntax	Data	Read/Write	Default
Set amp IP address	NEAMP1,IPADDRESS=<data>	xxx.xxx.xxx.xxx	R/W	192.168.254.252
Set amp sub net	NEAMP1,IPSUBNET=<data>	xxx.xxx.xxx.xxx	R/W	255.255.255.0
Set amp gateway	NEAMP1,IPGATEWAY=<data>	xxx.xxx.xxx.xxx	R/W	192.168.254.1
Select if DHCP are used or not.	NEAMP1,IPDHCP=<data>	ON, OFF	R/W	OFF
Amp, SN	NEAMP1,UNITSN=<data>	8 character	R	
Amp, Username for homepage	NEAMP1,WWWUSER=<data>	Max 8 character	R/W	Admin
Amp, Password for homepage.	NEAMP1,WWWPSW=<data>	Max 8 character	R/W	Admin
LAN speed (F = Full duplex, H = Half duplex)	NEAMP1,IPSPEED=<data>	10F, 10H, 100F, 100H	R/W	100F

### RS-232: 1 to 3

Description	Syntax	Data	Read/Write	Def.
Set the comport baudrate	NEAMP1,COM:<port>,BAUDRATE=<data>	1200,2400,4800,9600,14400,19200,38400,57600,115200	R/W	9600
Set the comport data bit	NEAMP1,COM:<port>,DATABIT=<data>	7, 8	R/W	8
Set the comport parity	NEAMP1,COM:<port>,PARITY=<data>	NONE, ODD or EVEN	R/W	NONE
Set the comport stop bit	NEAMP1,COM:<port>, STOPBIT =<data>	1 or 2	R/W	1

### Global functions

Description	Syntax	Data	Read/Write	Default
Save the current settings as the default startup values.	NEAMP1,SAVE=TRUE		W	
Restore factory defaults values for the entire system.	NEAMP1,FACTORYDEFAULT=<data>	AUDIO, COM, LAN or ALL.	W	
Set all the values to their default (last saved).	NEAMP1,RESET=<data>	AUDIO, COM, LAN or ALL.	W	



All commands that are in a span (e.g. Set volume 0-51, Select input 1-4, or Set balance -79 – 79 and so on...) can be used with INC (increment 1) or DEC (decrement 1) commands. E.g. if the volume is 25 and you send NEAMP1,VOL=DEC<CR> then the volume will be 24.

When asking for a current state of a command simply replace the <data> in the command with “?”.

All the commands must be terminated with <CR> (0x0D in HEX value).

When a command is successful executed the amplifier returns: **NEAMP1,OK<CR>**

If the commands that are sent are unknown the amplifier returns: **NEAMP1,ERR<CR>**

### Examples for use of the protocol

Setup your RS-232 port to the following values:

- Baudrate: 9600
- Databits: 8
- Stopbits: 1
- Parity: None

E.g. for setting the audio amplifier to input 2 and gain for that input to 3

Set gain to 3 on input 2:

**Send:** NEAMP1,INPUT:2,GAIN=3 <CR>

**Response:** NEAMP1,OK <CR>

Select the input 2 to be played:

**Send:** NEAMP1,INPUT=2 <CR>

**Response:** NEAMP1,OK <CR>

E.g. ask for input gain on input 2:

**Send:** NEAMP1,INPUT:2,GAIN=?<CR>

**Response:** NEAMP1,OK,INPUT:2,GAIN=3<CR>



## Examples for use of the protocol – continued

Here we will try to set up the audio amplifier to have some default parameters, turn on, mute on, mute off, and turn off again.

Default parameters:

- Default input: Input 2
- Default power: off
- Default volume: 20

To set up above default parameters (and leave the rest factory default) send the following commands to the audio amplifier (NOTE: <CR> is the 0x0D HEX value for Carriage Return):

- **Send:** NEAMP1,FACTORYDEFAULT=ALL<CR>
- **Response:** NEAMP1,OK <CR>
- **Send:** NEAMP1,INPUT=2<CR>
- **Response:** NEAMP1,OK <CR>
- **Send:** NEAMP1,POWER=OFF<CR>
- **Response:** NEAMP1,OK <CR>
- **Send:** NEAMP1,VOL=20<CR>
- **Response:** NEAMP1,OK <CR>
- **Send:** NEAMP1,SAVE=TRUE<CR>
- **Response:** NEAMP1,OK <CR>

Now we want to turn on the unit, send the following commands to the audio amplifier (NOTE: <CR> is the 0x0D HEX value for Carriage Return):

- **Send:** NEAMP1,POWER=ON<CR>
- **Response:** NEAMP1,OK <CR>

Now we want to mute and on mute the audio amplifier, send the following commands to the audio amplifier (NOTE: <CR> is the 0x0D HEX value for Carriage Return):

- **Send:** NEAMP1,MUTE=ON<CR>
- **Response:** NEAMP1,OK <CR>

To get out of mute send:

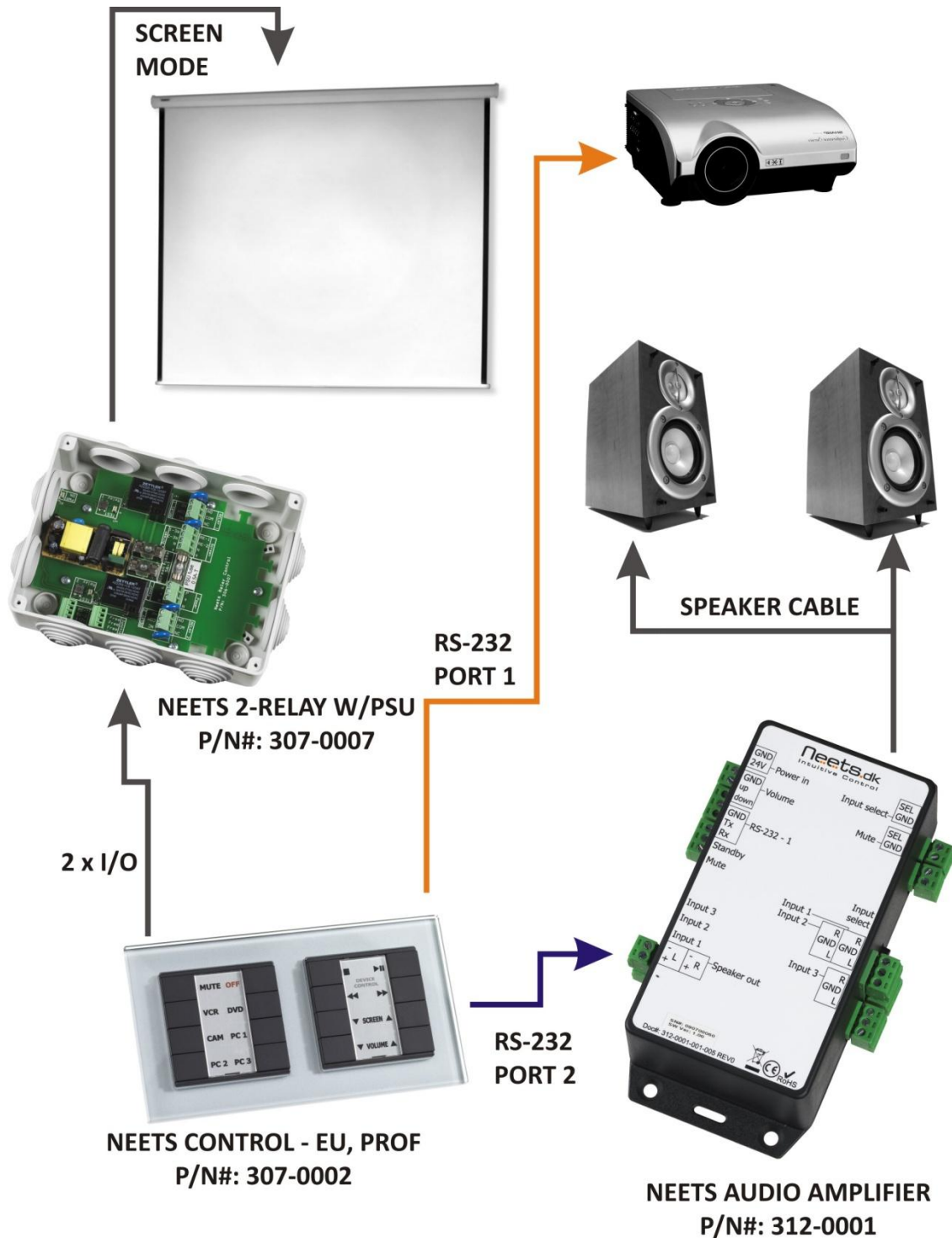
- **Send:** NEAMP1,MUTE=OFF<CR>
- **Response:** NEAMP1,OK <CR>

Now we want to turn off the unit, send the following commands to the audio amplifier (NOTE: <CR> is the 0x0D HEX value for Carriage Return):

- **Send:** NEAMP1,POWER=OFF<CR>
- **Response:** NEAMP1,OK <CR>

**Application drawing 312-0001, 312-0002 and 312-0003**

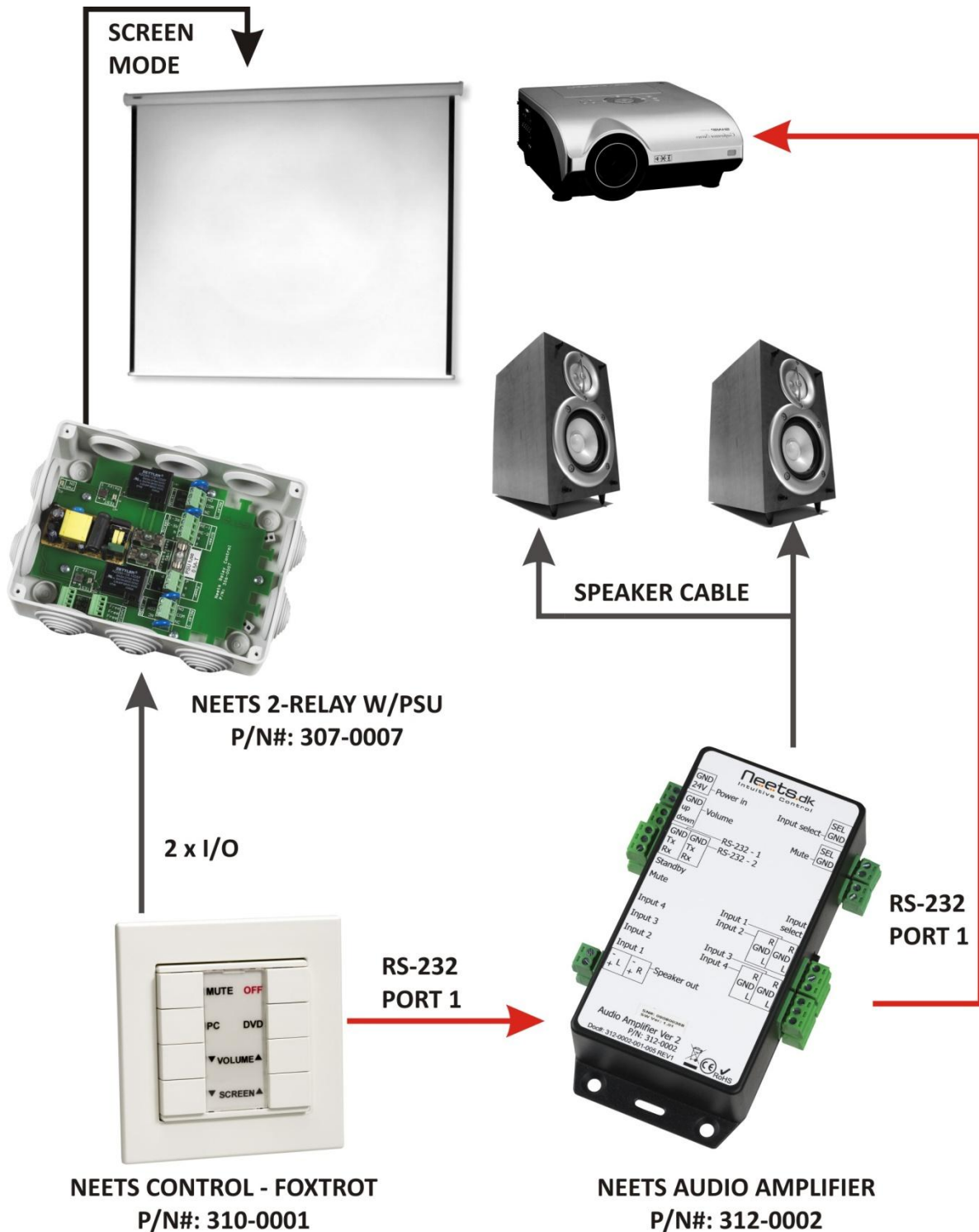
Bellow application for all models of our amplifier.



The Neets Control – EU, professional is controlling the audio amplifier on RS-232 port 2 on the control system, and is connected to RS-232-1 on the audio amplifier. Furthermore the Neets Control – EU, professional is controlling the screen thru I/O and the projector on RS-232 port 1.

**Application drawing 312-0002 and 312-0003**

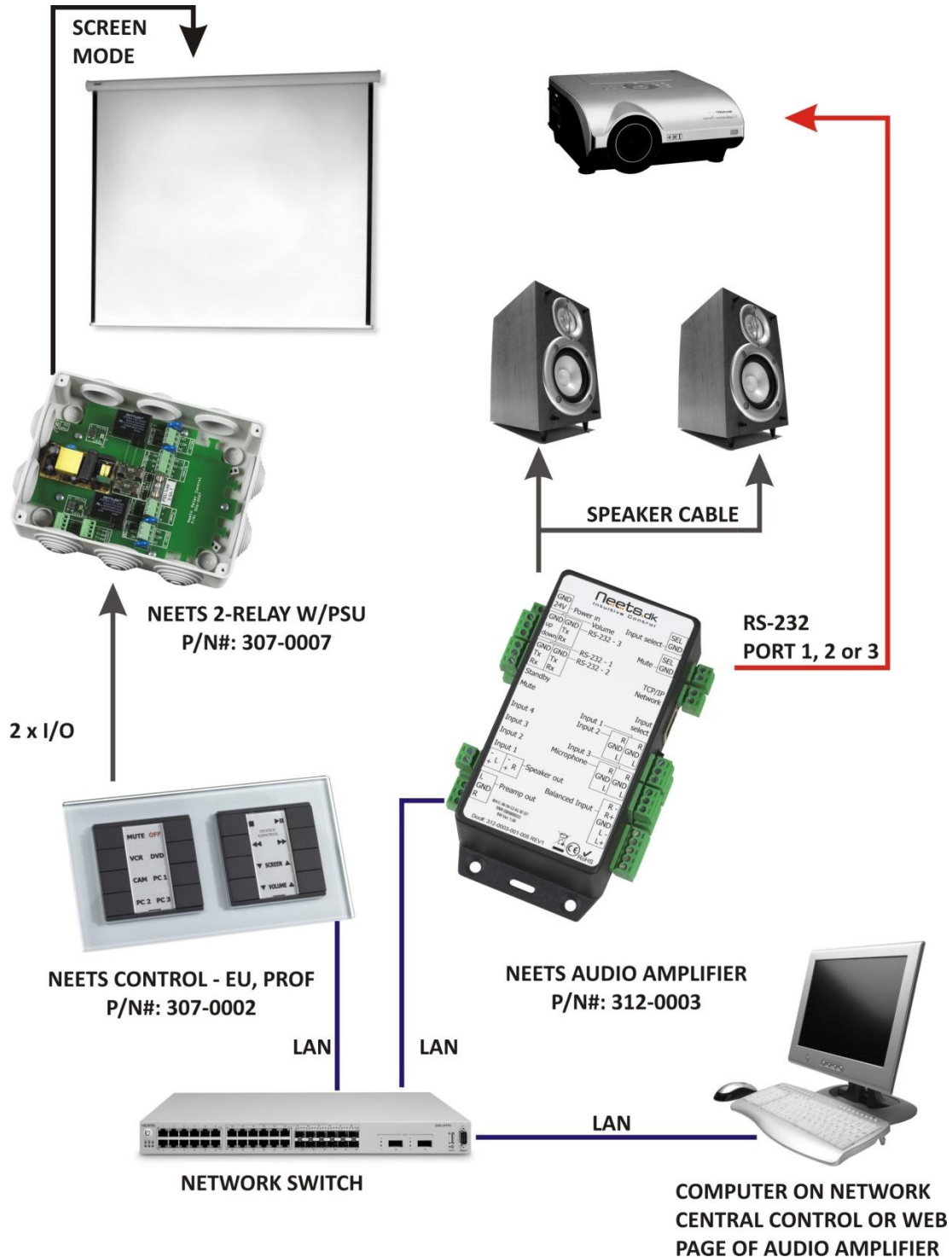
Bellow application for the 2 biggest models of our amplifier.



The Neets Control – FoXtrot is controlling the audio amplifier on the RS-232 port on the control system, and is connected to RS-232-1 on the audio amplifier. The projector is connected to the “loopthru port” on the amplifier (RS-232-2) and therefore the Neets Control – FoXtrot is also controlling the projector thru the audio amplifier. The two I/O on the Neets Control FoXtrot is controlling the screen up/down.

**Application drawing 312-0003**

Bellow application for the biggest model of our amplifier.



The Neets Control – EU, professional is controlling the audio amplifier on the LAN port on the control system. The Audio amplifier is controlling the projector on RS-232-1 and the 4 – Relay box on RS-232-2 (screen up/down), so here we uses 2 of the 3 RS-232 ports on the Audio amplifier, and only the LAN connector on the Neets Control EU, professional