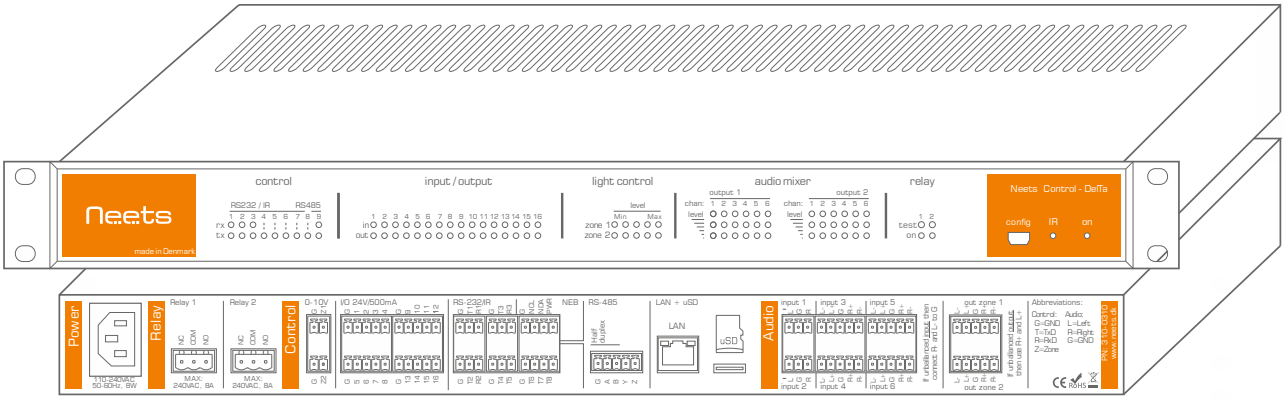
Neets Control - DelTa

P/N#: 310-0310

User manual



Neets

Foreword:

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

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
TSA: 21-11-13	First release.	All	1.00

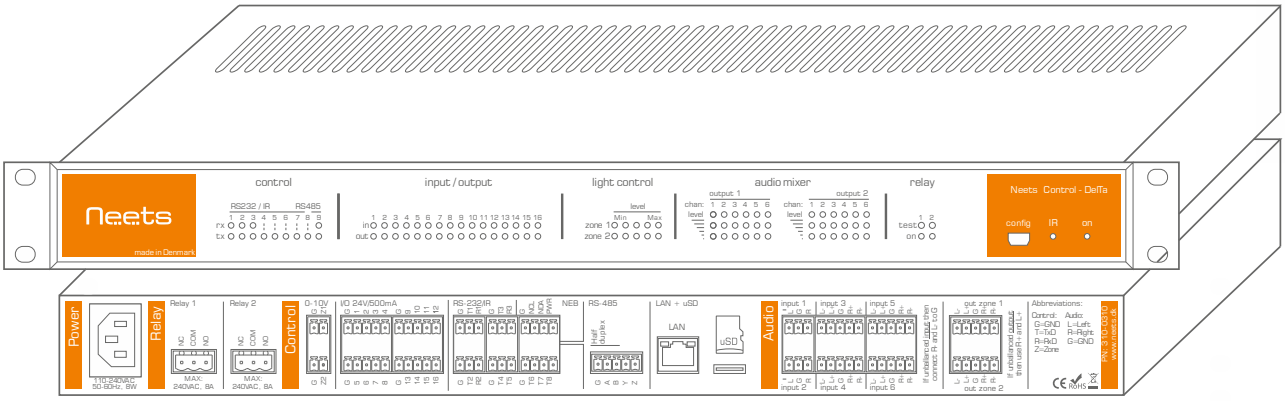
Table of content

Description:

Neets Control - DelTa gives you a detailed but still intuitive control of complex AV systems in auditoriums, large meeting -and conference rooms. Simply take control of the entire room from any mobile touch device. The built-in audio-mixer, 240VAC Relays, light- and AV control makes the DelTa an unmatched and cost-effective 3-in-one solution, giving you complete room control via mobile touch device or web browser.

Custom graphical user interfaces can easily be made and configured using the new and intuitive Neets Project Designer software. 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 generous amount of RS-232, RS-485, LAN or IR ports, making the Neets Control - DelTa capable of controlling even very demanding facilities.

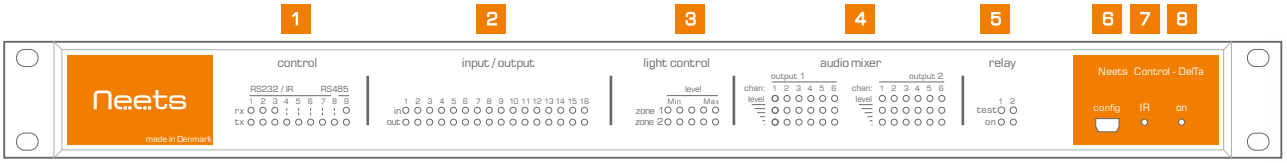


Function description	
RS-232 (Tx, Rx) / IR (controls up to 2 IR devices on each port)	3
RS-232 (Tx) / IR (controls up to 2 IR devices on each port)	5
LAN device control	10
I/O	16
0-10V output (Light control)	2
Relays	2
Test buttons	2
NEB Bus (including Extender up to 20m)	1 (5 NEB)
RS-485 half/full dublex	1
Real time clock	Yes
IR Learn option with Device editor	Yes
Unbalanced line in (0dB gain)	1
Microphone input / unbalanced line in (Mic 30-42dB gain)	1
Balanced/unbalanced line in (With up to +12dB gain)	4
Balanced/unbalanced outputs (0dB gain)	2
Mixer line in 0 to -100 dB (induvial volume, treble, bas and balance)	All inputs

Connections on DelTa

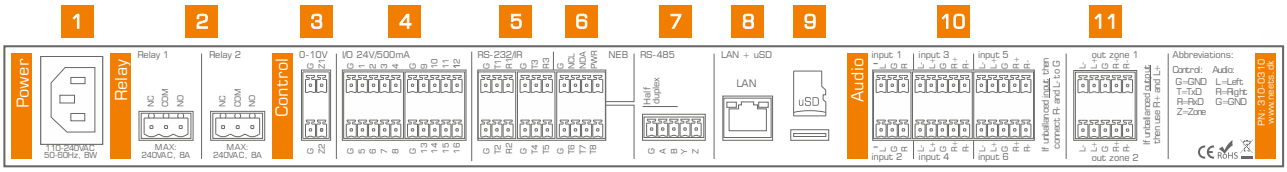
There are several connections on back and front please see here bellow what you find.

Front:



Number:	Description
1	Indication for transmitting or receiving on RS-232, RS-485 or IR
2	Indication for input and output on backside (I/O)
3	Light control indication (20% each step)
4	Audio mixer indication (low/med/high level) it is not an VU meter
5	Relay indication and test buttons
6	Mini USB for programming
7	Input for IR learning
8	Power indication

Backside:



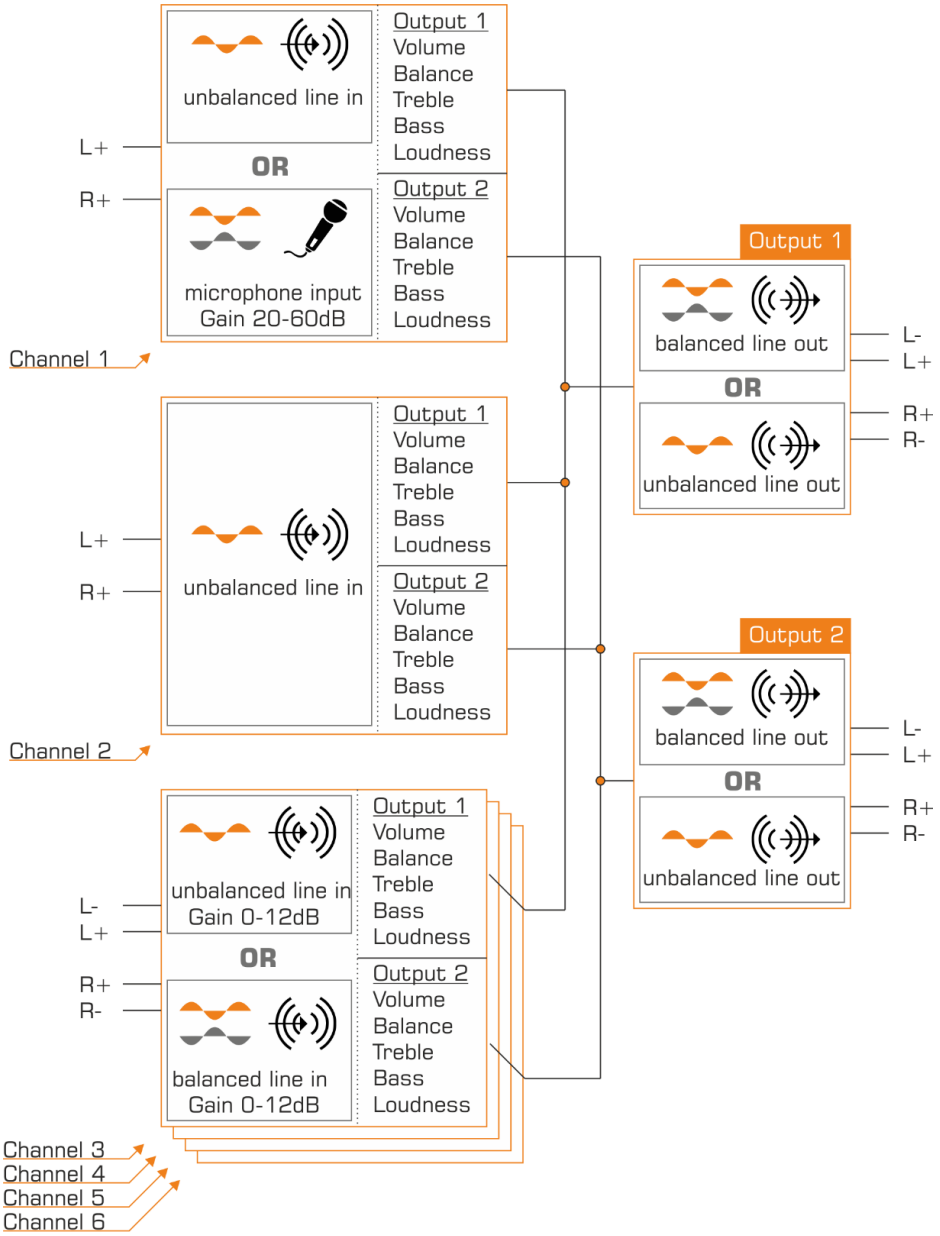
Number:	Description
1	110-230 VAC power in
2	2 x Potential free relays
3	2 x 0-10V output connector
4	16 x Input/output connectors
5	8 x RS-232 or IR connectors (3 x bidirectional RS-232)
6	1 x Neets Extension Bus (NEB)
7	1 x RS-485 Connector
8	1 x RJ-45 Network (LAN) connector
9	1 x µSD Card
10	6 x Audio inputs
11	2 x Audio outputs

Audio mixer description

The mixer has 6 channels input and 2 outputs, you can mix all input channels to all outputs. You do also have 12 different treble, bass, balance and loudness function (6 channel in x 2 differential outputs = 12). So this audio mixer gives you flexibility of control.

What is line level on the mixer?:

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, and sometimes MP3 players. In contrast to line level, there are weaker audio signals, such as those from microphones, and stronger signals, 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 VRMS), and the most common nominal level for professional equipment is 4 dBV (1.228 VRMS).



When you power up the Neets Control – DelTa for the first time it will be set like this:

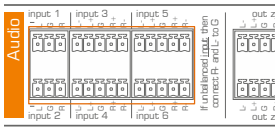
Input, function	Gain settings	Output	Level
Input 1, unbalanced line in	N/A	Zone 1	-25dB
Input 2, unbalanced line in	N/A	Zone 1	-100dB (Muted)
Input 3, balanced line in	0dB	Zone 1	-100dB (Muted)
Input 4, balanced line in	0dB	Zone 1	-100dB (Muted)
Input 5, balanced line in	0dB	Zone 1	-100dB (Muted)
Input 6, balanced line in	0dB	Zone 1	-100dB (Muted)
Input 1, unbalanced line in	N/A	Zone 2	-100dB (Muted)
Input 2, unbalanced line in	N/A	Zone 2	-25dB
Input 3, balanced line in	0dB	Zone 2	-100dB (Muted)
Input 4, balanced line in	0dB	Zone 2	-100dB (Muted)
Input 5, balanced line in	0dB	Zone 2	-100dB (Muted)
Input 6, balanced line in	0dB	Zone 2	-100dB (Muted)

All balance, treble, bass and loudness will be set to 0dB or off

Connections

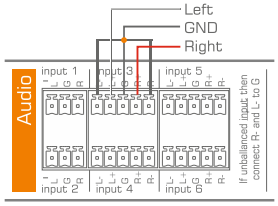
Audio input

Channel 1 can be either unbalanced line in or a differential dynamic microphone input with 30 – 42dB gain (must be selected in software). When in microphone mode, left input terminal becomes Cold(-) and right input terminal becomes Hot(+).



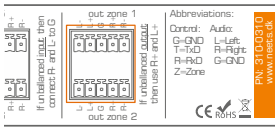
Channel 2 can be unbalanced line in.

Channel 3, 4, 5 and 6 can be either balanced line input or unbalanced line input. If you want to use it as unbalanced input you will have to connect the "L-" and "R-" to GND in the 5 pin screw block, and connect your signal to "L+" and "R+". You can in the software set the gain from 0dB to + 6dB if you got a low signal (default is 0dB).



Audio output

The output terminal can be used either in balanced or unbalanced mode. Simply use "L-", "L+", "R+" and "R-" for balanced mode, and use "L+" and "R+" for unbalanced mode (REMEMBER to NOT connect "L-" and "R-")



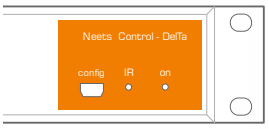
USB

The USB port (labeled "config" on front) can only be used to configure the Neets Control – DelTa from the Neets Project Designer software. It cannot be used to control any devices what so ever.

The USB port is not able to power the control system while configuring, so always remember to connect the 230 VAC power. The USB connector needed to connect to the Neets Control – DelTa is of the type mini USB B 5P. You can buy this cable on the web (buy a USB A to Mini USB B 5P).

IR receiver.

The IR learner can be used directly into Neets Device Editor software thru USB cable. You can learn your remote control into the setup software for easy configuration onside, or even on your desk.

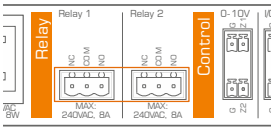


Switch and LED

The 2 switches (SW-1 to SW-2) are used to test the relay functions. The LED's is to indicate the if the relay is activated or not.

Build in relays

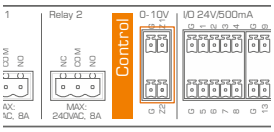
On Relays there is access to both the NO (Normal open contacts) and the NC (Normal close contacts) for greater flexibility.



0-10 Volt output

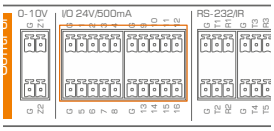
The Neets Control – DelTa has 2 0-10Volt output. They can be used for controlling e.g. light or level on external equipment.

The ports are not potential free, that means you will need external protection if you need to prevent e.g. ground loops.



I/O ports

The Neets Control – DelTa has 16 I/O onboard. They can be used for external keyboard, PIR (movement) sensor, Keyboard lock, extra relays and so on.
The ports are not potential free, that means you will need external relays if you need to prevent e.g. ground loops.

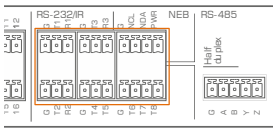


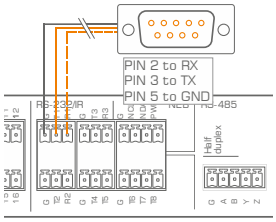
When used as output they are active low (when the software says activated the pin are tied to GND thru a FET transistor also called open drain/collector function). You can draw up to 24VDC/500mA

When used as input the voltage has to be below 1 Volt DC to be accepted as LOW, and above 4 VDC (but below 24 VDC) to be accepted as high. The inputs are default high and need to be connected to ground in order to change its state,

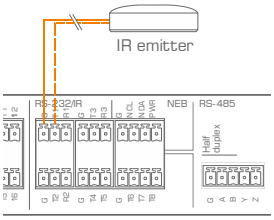
RS-232/IR ports

The onboard RS-232 ports (T1, R1, T2, R2, T3, R3, T4, T5, T6, T7 and T8) is used for one or two way communication (port 1-3 is two way, 4-8 is one way). This port is used for the device you want to use reply on (e.g. your projector). The DelTa can on all RS-232/IR ports has 4 ports (T2, T3, T4 and T5) that can be configured (in software) either as RS-232 or as IR emitter.

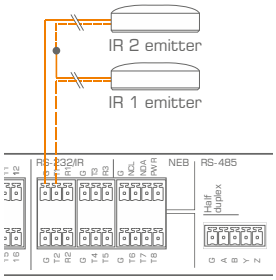




When used as RS-232 transmit port: Connect the device to e.g. T1, R1 and GND, as shown here above.



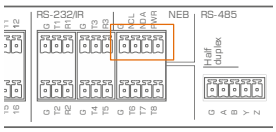
When used as single IR port: Connect the IR emitter to e.g. T1 (white striped wire) and GND, as shown here above.



When used as dual IR port: Connect the IR 1 emitter to e.g. 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 here above.

NEB port

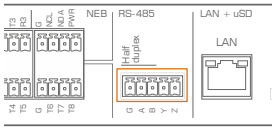
The Neets Control – DelTa has a build in NEB (Neets Extension Bus). This port is used to add up to 5 NEB devices (2 Keyboard, 2 Level Control and one Expander). The NEB port have build in NEB extender that give you up to 20m from the DelTa to your NEB devices. BUT you MUST connect NEB extender module (310-0005) in the end for you NEB units



The DelTa have built in NEB Extender, so you need extender for all your NEB units

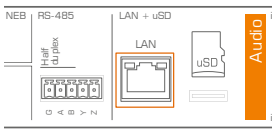
RS-485 port

The onboard RS-485 ports can either run in full duplex (using all 5 wires) or in half duplex (using 3 wires). From the Project Designer you can set the different modes, you can also swap RxD wire or TxD wire, if you get the wire wrong monuted



LAN

The network connector is for connecting the system to the local area network.



There are two LED's on the connector. They have the following meaning:

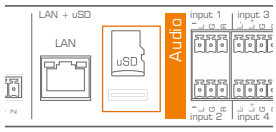
Color:	Off	On	Blink
Yellow	No Link	Link	Activity
Green	10Mbit	100Mbit	

Default IP settings is:

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

uSD-Card

The uSD-Card is used to storage firmware, homepage and settings. Under normal operation removal of the uSD-Card is not needed.



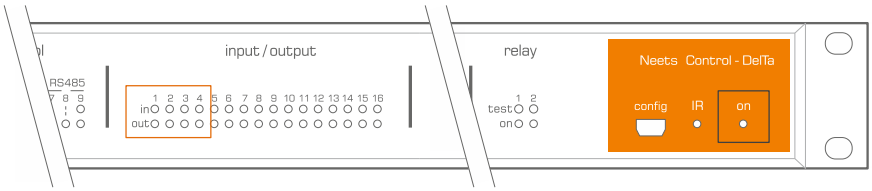
To remove the SD Card from the unit, you push the SD Card GENTLY into the holder about 1mm (by using your finger tip). Release again, and it will slide out.

REMEMBER to remove power from unit before removing Micro SD card!

Fault finding:

On front of the unit you will find 5 LED used for error indication (on LED and input/output LED 1-4).

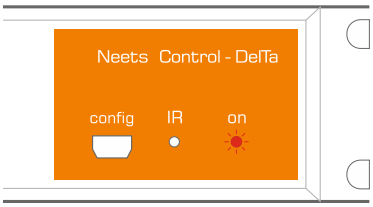
The on LED can have the following indications:

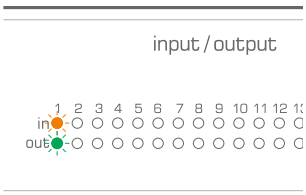
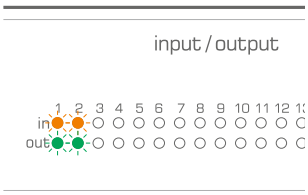
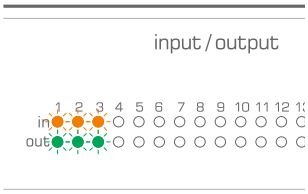
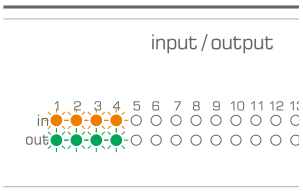


Description	"on" LED behavior
System starting	Orange color non flashing
System running	White color non flashing
System in error	Red color blinking
Firmware upgrade in progress	Orange color non flashing

Error LED

If system in Error the on LED on front is flashing reed together with some of the input/output LED. The fault type and solution for it you can find here bellow…



LED shows	Description	Solution
	No connection to one or more NEB units.	• Check that the NEB units used in the project are connected. • Make sure that there are used a NEB extender at the NEB unit end. • If you are using long cable try to add a power at the NEB units. After doing one of the above thing remove the power to the control system for 20 sec before reconnecting the power again.
	No project found on the control system	• Try to upload the project again. • If the problem keep appearing after several successfully upload. Contact Neets or your local distributor.
	Missing SD card or error on SD card	• Make sure that there is a SD card inserted in the Control system. (Look at the back side) After doing one of the above thing remove the power to the control system for 20 sec before reconnecting the power again.
	Unexpected Error	• Remove the power to the control system for 20 sec before reconnecting the power again. If the error keep coming. Contact Neets or your local distributor.

Specifications:

Power input	
Voltage	97VAC - 240VAC
Frequency	47Hz - 63Hz
Power usage	8W
Connector type	IEC plug
Relay output	
Voltage max	240VAC
Current max	8A
Load max AC1	1150W @ 230VAC
Load max AC15	500W @ 230VAC
Single phase motor	370W @ 230VAC
Connector	3 pin screw block
0-10V output	
Output error	+/- 0.01% full scale
Min step (full scale)	2048
Mode options	0-10V, 1-10V, free
Output impedance	10R
Output current max	25 mA / 400 ohm
Connector	2 pin screw block
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	1200-115200bit/sec
Data bits	7 – 8
Parity	Even, Odd, None
Stop bits	1/2
RS-485	
Duplex modes	Half or full
Baud rate	1200-115200bit/sec
Data bits	7 – 8
Parity	Even, Odd, None
Stop bits	1/2
IR	
Transmit frequency	400Hz to 500 KHz
IR Learn frequency	1KHz to 150 KHz

Network (LAN)	
Speed	10/100Mbit
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
Audio	
Un- or Balanced inputs	4
Microphone or line input	1
Unbalanced input	1
Un- or Balanced outputs	2
Microphone gain	30dB - 42dB
Mic SNR (@3,6mV RMS)	<93dB
Line in SNR (@ 1V RMS)	<92dB
Channel separation	<95dB
Frequency response	20Hz - 20KHz +/-1dB
Input level max (THD 1%)	2.3VRMS
Output max (THD 1%)	2.3VRMS
Balanced input Gain	0 - 6dB
Volume level	0 - -79dB
Mute	<100dB
uSD-Card	
Type	Micro-SD,
Card size min / max size	1Gb / 4Gb
File system	FAT 32
General	
With (mm)	437 / 483mm.
Depth (mm)	141mm.
High (mm)	44mm. (1U)
Weight kg/lbs	1.9kg / 4.1lbs
Weight shipping kg/lbs	2.2kg / 4.9lbs
Dimension shipping (W/D/H)	530mm / 230mm / 80mm
Storage temperature	-20°C to 50°C
Storage moisture	Non condensing
Operation temperature	0°C to 30°C
Operation moisture	Non condensing