

Manual QueBec Pro

Installation Manual



Neets

Foreword

This document describes how to install and operate the Neets Control – QueBec Pro.

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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:

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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
DB: 29-03-2017	First release	All	1.00
DB: 18-05-2017	Specifications corrected	2, 5, 6, 8, 11, 13	2.00
DB: 24-05-2017	Specifications corrected	6	3.00
DB: 06-06-2017	Specifications corrected and part number changed	8, 10, 11, 12, 13	4.00
DB: 11-08-2017	Layout changed	12	5.00

What is in the box?

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

- 1 x Neets Control – QueBec Pro
- 4 x Terminal connectors
- 2 x Screws and plugs for wall mounting Ø4 x 60 mm
- 2 x Screws for mounting on Neets Rack Shelf, M4 x 35 mm.
- 4 x Adhesive feet
- This manual



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

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, 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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Description

Neets Control - QueBec Pro is designed to create an intelligent AV-control environment in small and medium-sized meeting rooms or learning spaces with interactive displays or LCDs.

QueBec Pro senses the presence of image/picture, and automatically initiates room functions and switches automatically between all HDMI/ VGA signals.

For easy installation, the QueBec Pro can be powered by PoE and can be mounted anywhere.

Function Description

- Automatic Sensing AV control system
Senses the video/picture and automatically starts up room functions
- Makes Wireless Presentation smarter
Enhance collaboration between displays, wireless presentation solutions and other AV devices
- Auto Source Selection
Latest active source is automatically selected and displayed
- HDMI Sensing and Repeater
HDMI sense works with all products and the Repeater enables longer cable drive
- VGA Video Detection
Enables Hsync detection of video signals
- Built-in 3-Port HDMI switch
Connect 3 HDMI input sources and switch between upon signal present
- Fast installation
2 all-through screw holes, Euroblock connectors and PoE makes installation fast and efficient
- 2 Bi-directional RS-232 or 4 IR port
Used for sending commands to projectors or other AV devices using serial or infrared communication
- 2 Low-Voltage Relays
Used for output control of relays, switches 2 General Purpose I/O ports
Used for input/output control of relays, switches and sensors
- 1 Ethernet port
Used for controlling 2 LAN devices and extension devices
- PoE powered
Power the QueBec Pro 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	2
I/O	2
Low voltage relays	2
PoE input	1
VGA loop through with signal detection	1
HDMI switch with 3 input with signal detection	1
USB port for programming	1
PIR sensor input	Yes
Light on/off	Yes
Room darkening	Yes
Screen up/down	Yes
Device feedback	Yes

Specifications

Neets Control - QueBec Pro

RS-232 / IR port

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

IR learn

IR Learn frequency	1 KHz to 150 KHz
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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	4 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)

VGA input

Sense type	Vertical sync (Pin 14)
Max resolution	QWXGA-2048x1152
Connector	VGA DE15 female plug

General

Width	218 mm
Height	37 mm
Depth	70 mm
Width	8,58 Inches
Height	2,76 Inches
Depth	1,46 Inches
Weight	0,52 kg
Shipping weight	1,0 kg
Shipping dimension (W/D/H)	282 mm / 188 mm / 55 mm
Storage temperature	-20 °C to 50 °C
Storage moisture	Non-condensing
Operation temperature	0 °C to 30 °C
Operation moisture	Non-condensing

Approvals

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

HDMI switch

Input	3
Output	1
Connector	HDMI type A
HDMI version	1,4
Sense type	TDMS clock (Pin 10 and 12)
HDCP support	No
Video support	HDTV formats up to 1080p 12bit Deep Color DVI RGB graphics up to 1600 x 1200 @ 60Hz
Audio support	Full audio input and stereo output support HDMI Compatible audio interface

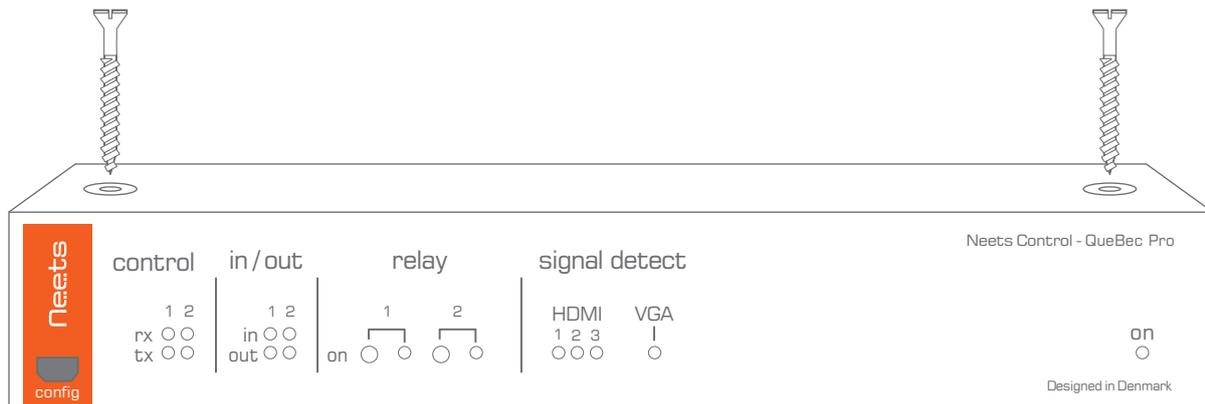
Product number

310-0020	QueBec Pro
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Installation

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

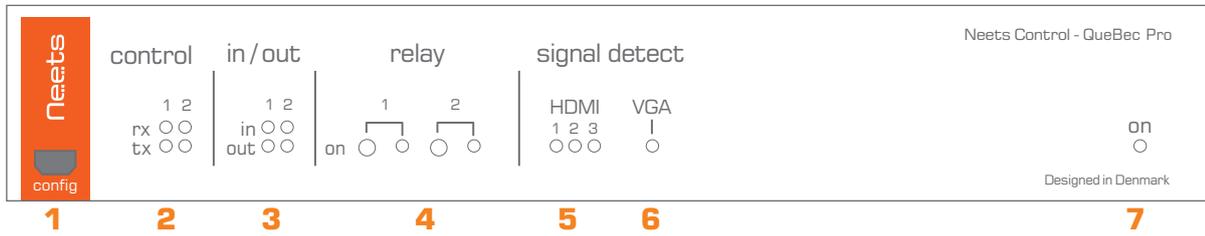
Alternatively, the unit can be mounted under a table, on a ceiling etc. with the included self-tapping screws. Unpack the unit, place the unit on the surface where it should be mounted, and screw the two screws through the holes in the top as shown below:



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 / and status indication
5	HDMI /VGA signal detection status
6	VGA signal detection status
7	Power and error indication

Front USB Configuration

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

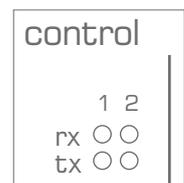
The QueBec Pro must be powered by PoE supply that complies with IEEE 802.3af and 802.3at, type 1 in order to configure it by USB.

The USB connector for connecting to the QueBec Pro 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.

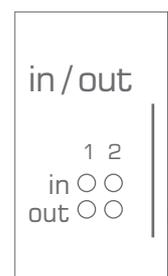


IO Status Indication

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.

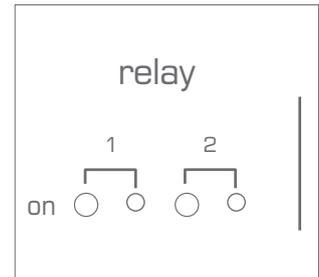
When an IO is configured as output, the green LED marked "out" will illuminate when the output is high and turn off when the output is low. The yellow LED marked "in" will remain off.



Relay Control and Indication

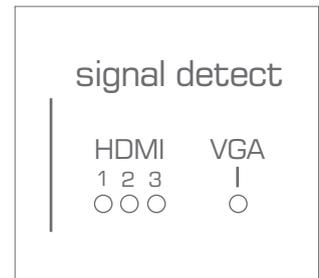
The two test buttons are used to test the built-in relay function. The test buttons are intended for use during installation to control functionality of connected devices. The LEDs will indicate if the relay is activated (green) or not activated (off) during use of the test buttons. They will also illuminate when the relays are controlled by the project in the QueBec Pro.

Be aware that you can activate multiple relays at the same time and damage connected equipment if not careful.



VGA and HDMI signal detection

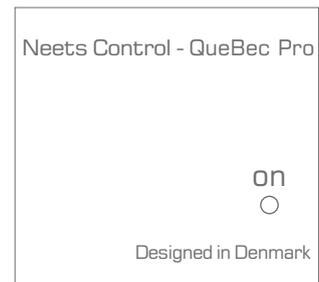
The led indicate if a signal on the input is detected or not. If the led light is green this indicate that a signal are present.



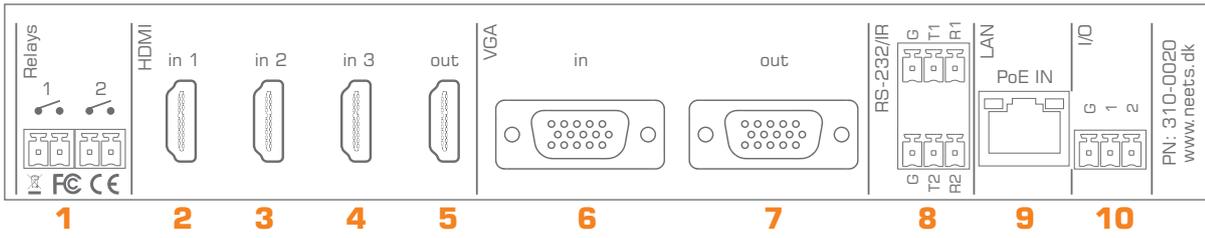
Power and error indication

The “on” LED will show the current status of the controller:

Green	Neets Control – QueBec Pro is on and running normally
Flashing red	The Neets Control – QueBec Pro is in error mode, se section “Error indication” on page 14 for details



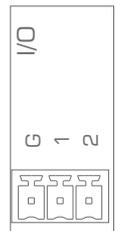
Back



Number	Description
1	2 x potential-free relays
2, 3, 4,	HDMI input 1 – 3
5	HDMI output
6	VGA input
7	VGA output
8	2 x bi-directional RS-232 or IR transmitter
9	RJ-45 Network (LAN) connector with PoE input
10	Digital I/O

I/O Connectors

The QueBec Pro has two I/O (Inputs/Outputs), which can be configured as 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. Or use the relays on the QueBec Pro.



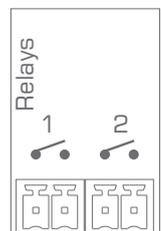
When used as outputs, the I/O ports are active low. When activated, the I/O ports are tied to GND through a FET transistor (also called open drain/collector function). Each I/O can draw up to 24VDC/500mA.

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. Relays

Relays

Relays are used when a external control is needed where there must be potential free connection between the control and the QueBec Pro.

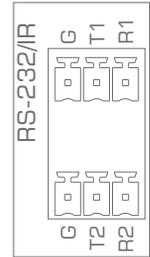
The relays are normally open types. This means that the terminals are not connected when the relay is off.



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.

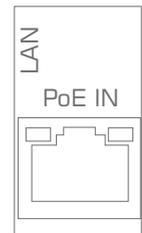


LAN connectors with PoE functionality

The LAN connector is used to connect the QueBec Pro to the local area network. The QueBec Pro has Power over Ethernet functionality built into both the LAN interface connectors.

You must connect the QueBec Pro to your LAN if you are using any of the LAN features of the product. The ports features auto MDI-X which means that you can connect the LAN ports 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 QueBec Pro, use a PoE enabled switch which complies with IEEE802.3af. Or you can use the PoE Injector (Part number 302-000508).



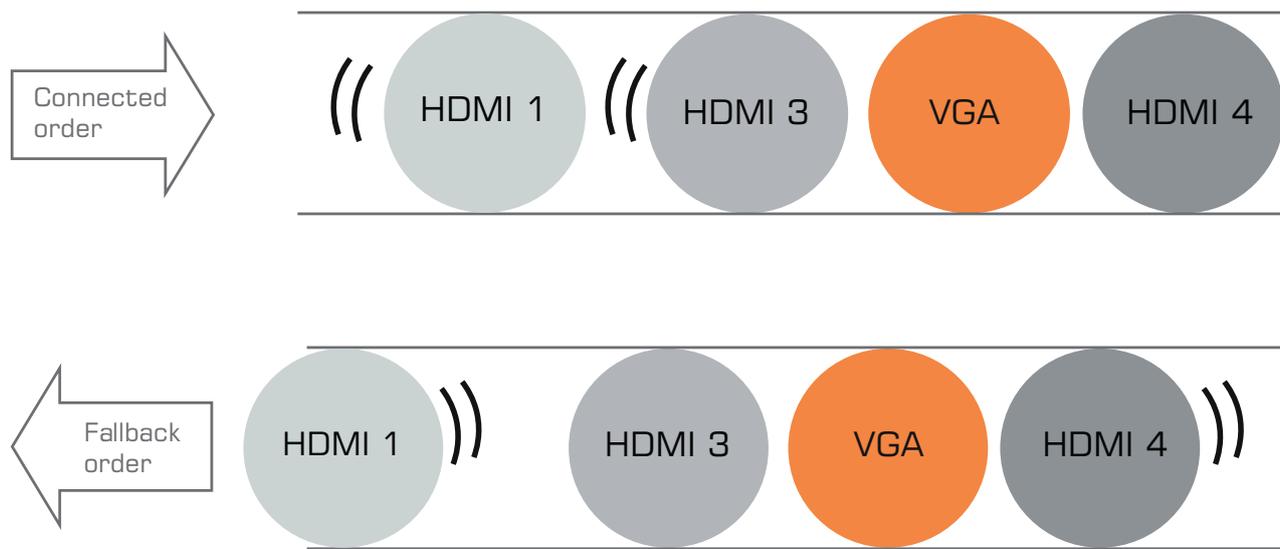
There are two LEDs on each connector with the following indication:

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

Automaticity input selection

The QueBec Pro has a built-in automatically input selection mechanism that ensure that the latest active input connected to the Quebec Pro will be selected as the active one.

The way QueBec Pro works can be compared to a LIFO (Last in, first out) buffer. The only difference is that if an input no longer is active it will be removed from the "LIFO buffer".



If the VGA input no longer is active it is simply removed from the "buffer" giving a new fallback order like this.



The QueBec Pro make sure that when changing between VGA and HDMI input the device being controlled will have the right input selected.

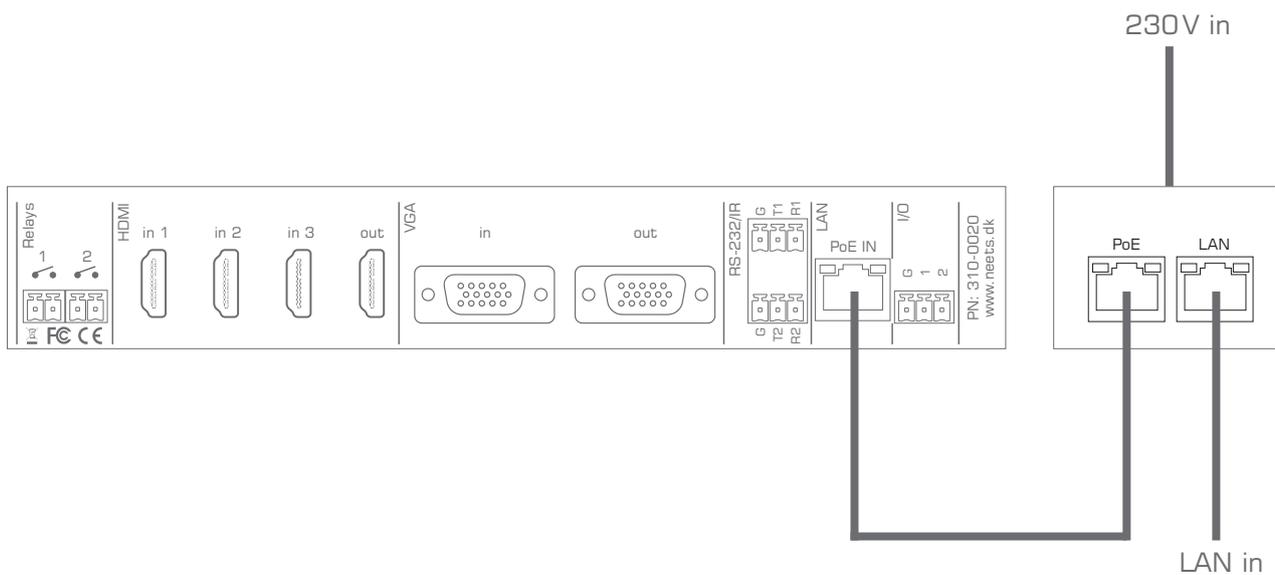
If you bypass the automaticity input selection and select an input that is not active, this will be added to the "LIFO buffer" the same way as if an active signal is detected. In case an inactive input is manual selected and another input become active the system will jump to this input.

How to connect

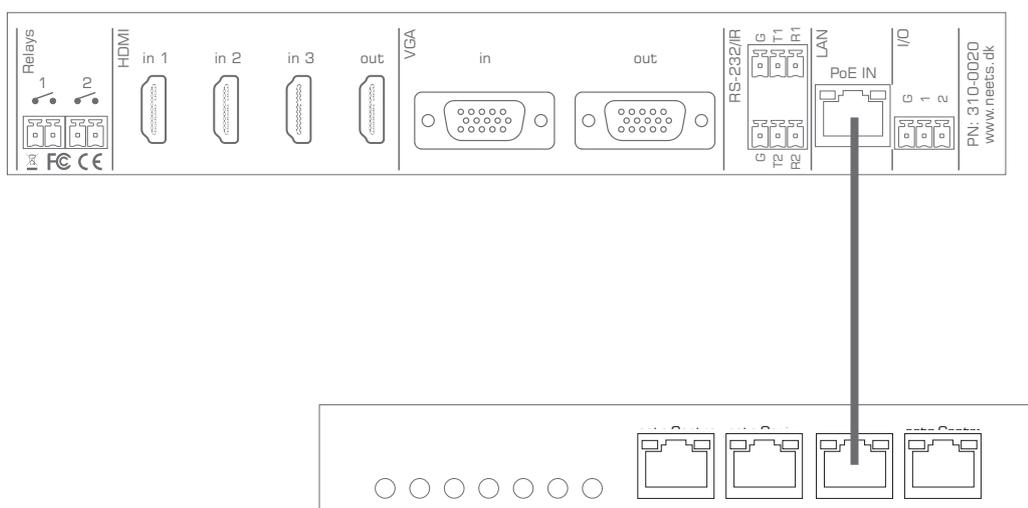
PoE power supply to QueBec Pro

To power up the QueBec Pro the LAN connector marked with PoE IN should be connected to a compliant PoE power supply or switch (PoE injector not included). Connect the PoE Injector LAN connector marked "POE" to the QueBec Pro 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 mains power supply using the supplied cable:



Alternatively the QueBec Pro can be connected to a PoE enabled switch:



Troubleshooting

Error indication using LEDs

If there is a fault in either the configuration or the QueBec Pro 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 below list:

LED shows	Description	Solution
HDMI 1 2 3  VGA 	Unexpected Error	<ul style="list-style-type: none"> Turn off the power to the control system for 20 sec before turning the power on again
HDMI 1 2 3  VGA 	Error in serial number	<ul style="list-style-type: none"> You need to return the unit to Neets or your local dealer for replacement/repair
HDMI 1 2 3  VGA 	No project found on the control system or unable to start the project	<ul style="list-style-type: none"> Try to upload the project again Alternatively, there can be a problem in the project you have uploaded. In this case, try uploading an empty project and see if this works
HDMI 1 2 3  ↓ HDMI 1 2 3  VGA 	Systems are resuming factory default settings	<ul style="list-style-type: none"> When pressing Switch 1 and 2 during power on, the system will delete current settings and resume factory default. This method is only intended to be used, if the control system locks up and enters "Unexpected Error"
HDMI 1 2 3  VGA 	No contact to Neets extension unit	<ul style="list-style-type: none"> 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
HDMI 1 2 3  VGA 	Wrong firmware version in Neets extension unit	<ul style="list-style-type: none"> 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