Qeedji

User manual

NAPOE109ku

1.10.12 002B

Legal notice

NAPOE109ku 1.10.12 (002B_en)

Rights and Responsibilities

Product information

Product design and specifications are subject to change at any time and `Qeedji` reserves the right to modify them without notice. This includes the hardware, the embedded software and this manual, which should be considered as a general guide to the product. The accessories supplied with the product may differ slightly from those described in this manual, depending on the developments of the various suppliers.

Precautions for use

Please read and heed the following warnings before turning on the power: - installation and maintenance must be carried out by professionals. - do not use the device near water. - do not place anything on top of the device, including liquids (beverages) or flammable materials (fabrics, paper). - do not expose the device to direct sunlight, near a heat source, or in a place susceptible to dust, vibration or shock.

Warranty clauses

The `Qeedji` device is guaranteed against material and manufacturing defects for a certain duration. Check the device warranty duration value at the end of the document. These warranty conditions do not apply if the failure is the result of improper use of the device, inappropriate maintenance, unauthorized modification, operation in an unspecified environment (see operating precautions at the beginning of the manual) or if the device has been damaged by shock or fall, incorrect operation, improper connection, lightning, insufficient protection against heat, humidity or frost.

WEEE Directive

This symbol means that your appliance at the end of its service life must not be disposed of with household waste, but must be taken to a collection point for waste electrical and electronic equipment or returned to your dealer. Your action will protect the environment. In this context, a collection and recycling system has been set up by the European Union.

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Part I

Description and installation

1.1 Introduction

The NAPOE109ku device is a dual role data Ethernet to USB-C adapter. Once connected to a Ethernet cable supporting PoE, it can provide power supply and IP network connectivity over the USB-C connector to a unpowered sink device.

The NAPOE109ku device is intended to be crimped through a KRONE connector, on an Ethernet multi-stranded cable supporting PoE IEEE802.3af (5E category minimum) then to be fixed inside a electrical junction box or inside a cable trunking.

This manual explains how to:

- crimp the provided KRONE connector,
- install the NAPOE109ku device,
- test the power connectivity of the KRONE connector.

Recommendations and warnings

This device is designed for indoor use only.

> ⚠ In the nominal mode, it is normal that the device is hot. It is advised to take precaution before handling the device with your hand.

Package Contents

Articles	Description	Quantity
Device	NAPOE109ku device	1
KRONE connector	Removable connector to be crimped on a network cable	1
Cable clamp	Clamp to tighten the network cable on the NAPOE109ku device	1
USB cable	Female USB-C to female angled USB-C 2 m cable	1

> ☛ *When coming straight from factory, the KRONE connector is already plugged on the NAPOE109ku device.*

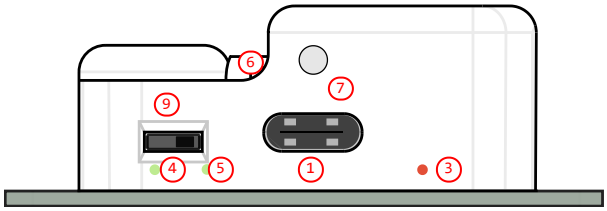
1.2 Faces

The NAPOE109ku device has:

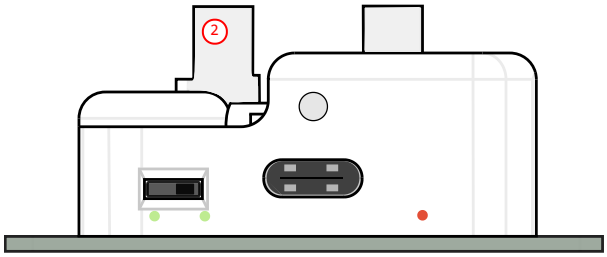
- 1 female USB-C connector (1)
- 1 removable KRONE connector (2),
- 1 power red LED (3),
- 1 status green LED for network activity (4),
- 1 status green LED for network gigabit connection (5),
- 1 ring to tighten the Ethernet multi-stranded cable (6),
- 1 screwing hole to lock an USB-C cable (7),
- 2 secable ears to fix the device inside a junction box or a cable trunking (8),
- 1 dipswitch (9) to activate or inativate the LED lightening.

Front face (with LEDs)

Front face with the KRONE connector unplugged:

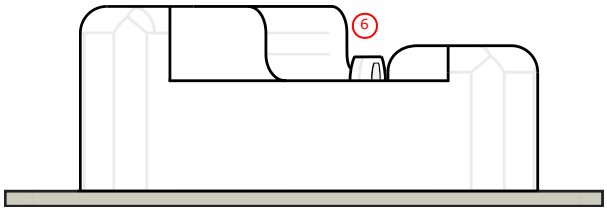


Front face with the KRONE connector plugged:

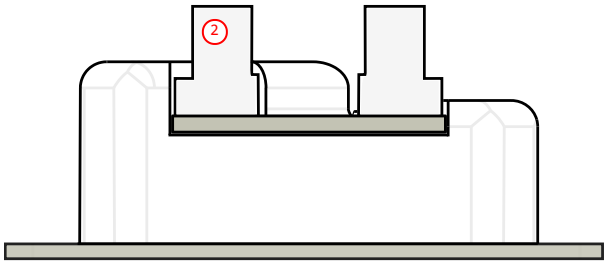


Rear face

Rear face with the KRONE connector unplugged:

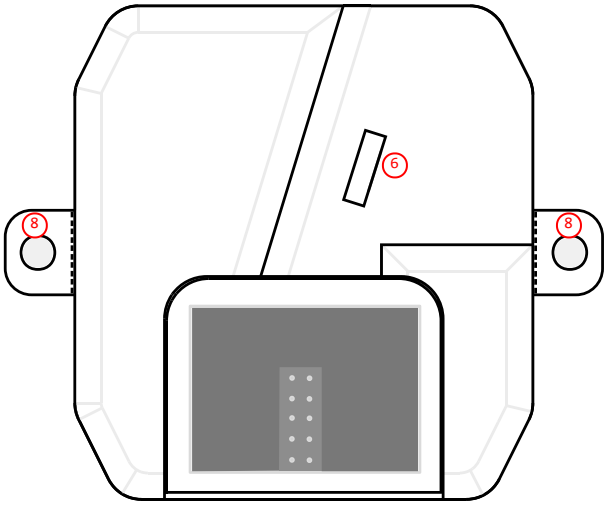


Rear face with the KRONE connector plugged:

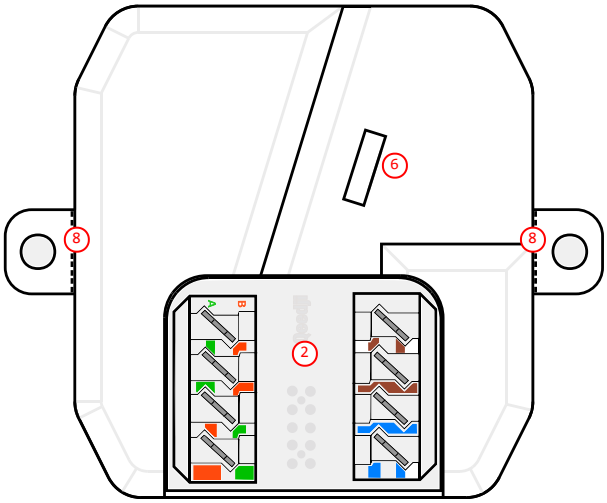


Top face

Top face with the KRONE connector unplugged:

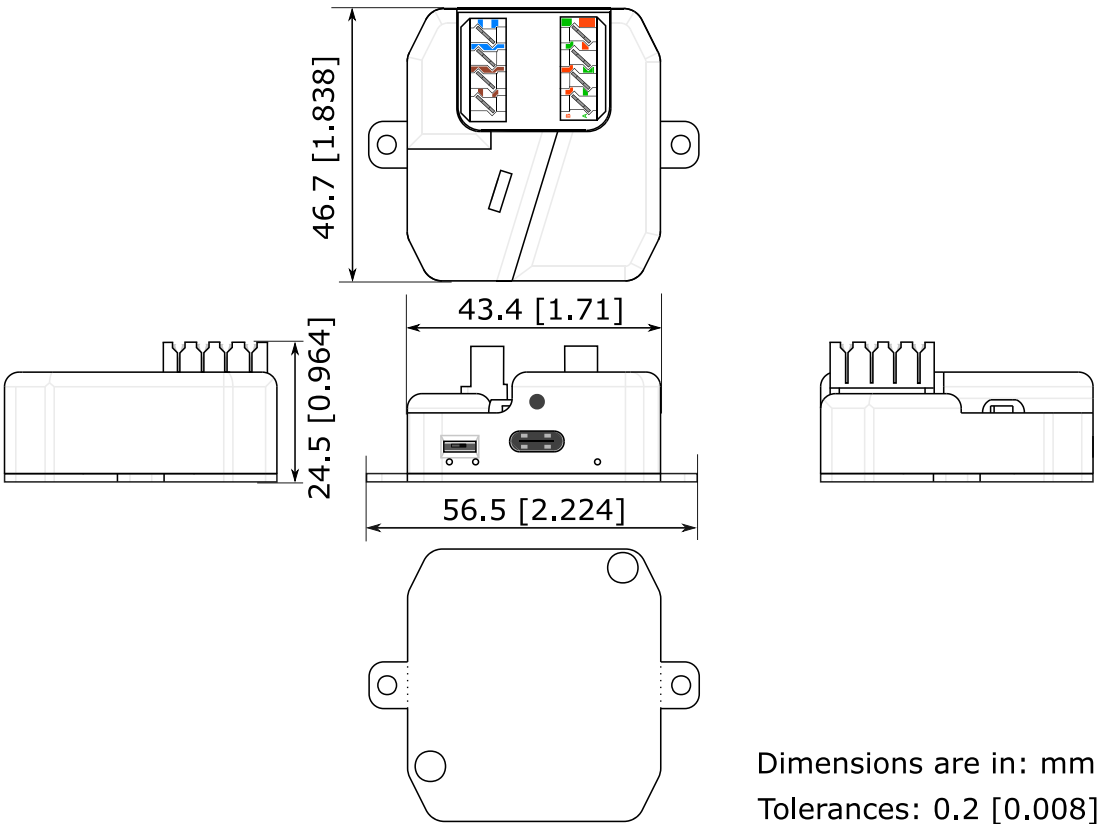


Top face with the KRONE connector plugged:



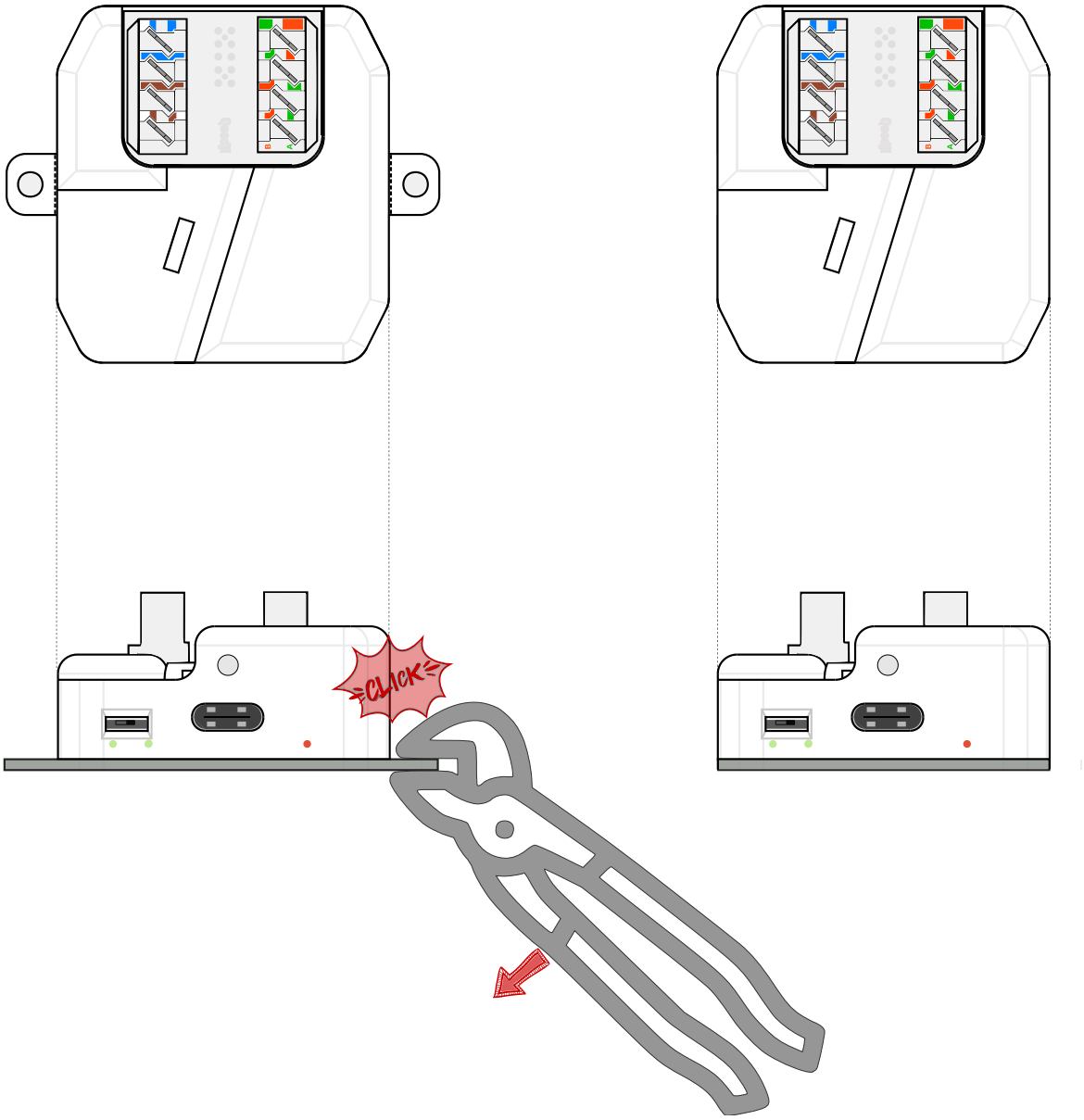
☛ The crimping procedure is explained in the chapter § KRONE connector crimping.

1.3 Device dimensions



Dimensions are in: mm [inch]
Tolerances: 0.2 [0.008]

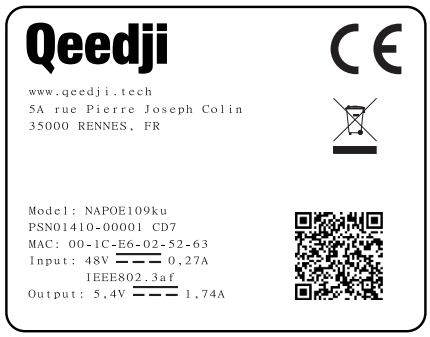
If not used and to save space, the secable ears can be removed by cut them with a flat plier or a spanner plier.



1.4 Labelling

Product label

The model of the device, the power supply characteristics, the serial number (PSN) and the MAC address are written on a label stuck on the case.

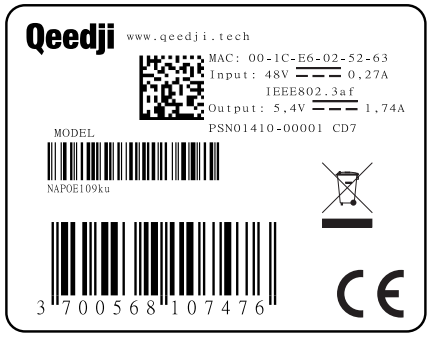


> ☛ *The QR code on the product label is corresponding to the product identification URL, for example:* `i.qeedji.tech?model=NAPOE109ku&sn=01410-00001&mac.lan1=00-1C-E6-02-52-63`.
>
> ☛ *FCC certification in pending.*

Packingbox label

This is the label stuck also on the packingbox. It is showing:

- the device model,
- the product serial number (PSN) (embedded also in the QR code),
- the manufacturer Web site.



> ☛ *The QR code on the packingbox label is corresponding to the product PSN, for example:* `PSN01410-00001 CD7`.

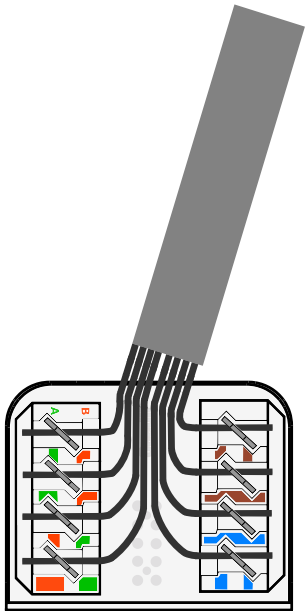
Some additional labels may be present in case of built-in options.

> ☛ *The serial number of the device could be requested in case of technical support.*

1.5 Connectors

KRONE connector

The KRONE connector needs to be crimped on a Ethernet multi-stranded cable. For further information, refer to the chapter § KRONE connector crimping.

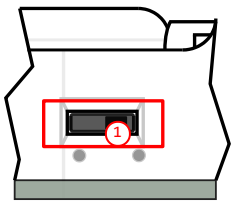


Dipswitch

In the default factory configuration, the dipswitch is configured in `nominal` mode ①.

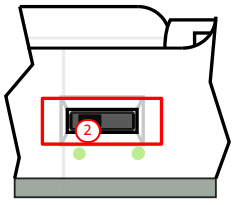
In the nominal mode, `dual role data` and `power delivery` are supported over the USB-C connector,

> ☛ *In the `nominal` mode the LEDs lightening is inactived.*



To set the device in `diagnostic` mode ②, helped with a pencil lead, set the dipswitch to the left.

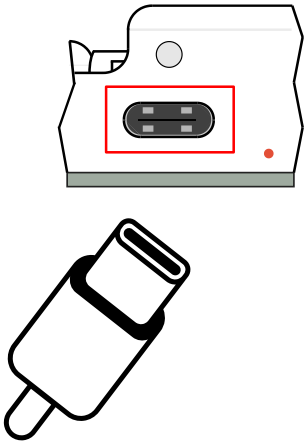
> ☛ *In `diagnostic` mode, the LED lightening for power and network activity is activated.*



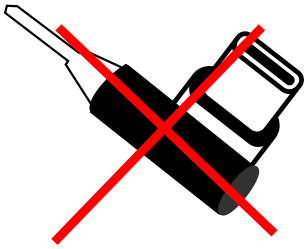
After having completed the `diagnostic` test, helped with a pencil lead, set the dipswitch back to the right in `nominal` mode. For further information, refer to the chapter § Diagnostic test.

USB-C connector

Plug the **not angled** male connector of the provided USB cable into the female connector of the NAPOE109ku device:

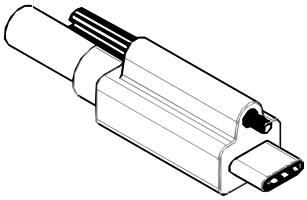


The **angled** male connector of the provided USB cable is reserved for the sink device.



> ☛ *The USB-C cables with locking screw are supported but this kind of cable is not provided in this package.*

Male USB-C connector cable with lock screw :



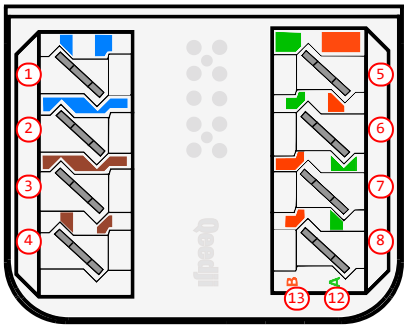
1.6 KRONE connector crimping

The NAPOE109ku device is hosting a KRONE connector which has to be crimped by a qualified person on a Ethernet multi-stranded cable supporting PoE IEEE802.3af (5E category minimum).

> ☛ The NAPOE109ku device is delivered straight from factory with the KRONE connector already plugged on the device.
>
> ⚠ The crimping step must be realized by using a crimping pliers for RJ11, RJ12, RJ45 cable, standard tool used by electricians, to ensure that the wires are properly crimped on the KRONE connector. Else some unexpected trouble like network connectivity, gigabit capability issue may be faced.

⚠ Before crimping the KRONE connector, check whether the Ethernet cable is type A or type B. That defines the RJ45 cable crimping PIN out. For further information, refer to chapter § Appendix: Type B or type A RJ45 cable PIN out.

KRONE connector PIN out



The PIN from 1 to 4 of the KRONE connector are always plugged to the same color. For the PIN 5 to 8, you need to know the type of the RJ45 cable used.

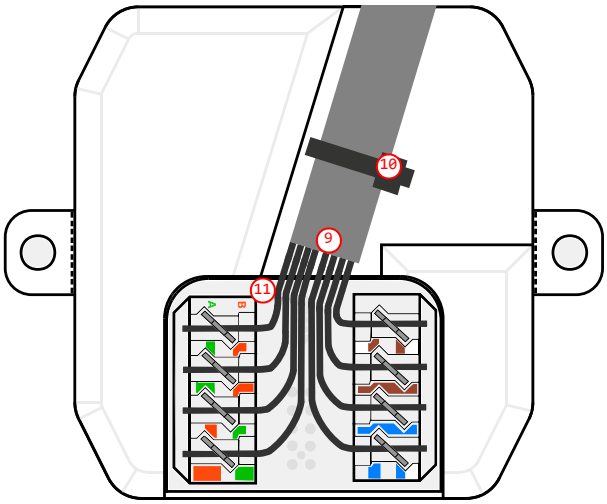
> ☛ The A letter (12) and B letter (13) are helping electricians to crimp appropriate wires of the type A or type B RJ45 cable on the KRONE connector.

Location	Type B RJ45 wire color	Required for 10/100 Mbps	Required for 10/100/1000 Mbps
(1)	white + blue	no[1]	yes
(2)	blue	no[1]	yes
(3)	brown	no[1]	yes
(4)	white + brown	no[1]	yes
(5)	green	yes	yes
(6)	white + green	yes	yes
(7)	orange	yes	yes
(8)	white + orange	yes	yes

Location	Type A RJ45 wire color	Required for 10/100 Mbps	Required for 10/100/1000 Mbps
(1)	white + blue	no[1]	yes
(2)	blue	no[1]	yes
(3)	brown	no[1]	yes
(4)	white + brown	no[1]	yes
(5)	orange	yes	yes
(6)	white + orange	yes	yes
(7)	green	yes	yes
(8)	white + green	yes	yes

[1] When the sink device supports only 10/100 Mbits network bandwidth, the crimping of these wires is optional.

⚠ The provided cable clamp (10) needs to be tightened over the cable jacket using the ring on the top face. So before crimping the wires, ensure that the cable jacket extremity (9) is as close as possible to the KRONE connector (11). It is advised that the colored wires before crimping have 50 mm length.



KRONE connector uncrimping

It is possible to uncrimp the KRONE connector from the Ethernet multi-stranded cable. It is advised to use a pliers to remove the wished wires.

☛ *The crimping pliers often support a tool to uncrimp wires.*

1.7 Diagnostic test

The diagnostic test consists in testing the KRONE connector crimping before fixing it definitively inside a junction box or a cable trunking.

> ☛ *After the diagnostic test is completed, this NAPOE109ku device is intended to work in `nominal` mode with the dipswitch position to the right.*

	`nominal` **mode**	`diagnostic` **mode**
USB-C data	yes	yes[1]
USB-C power delivery (output)	yes	no
LEDs lightening	inactivated	activated

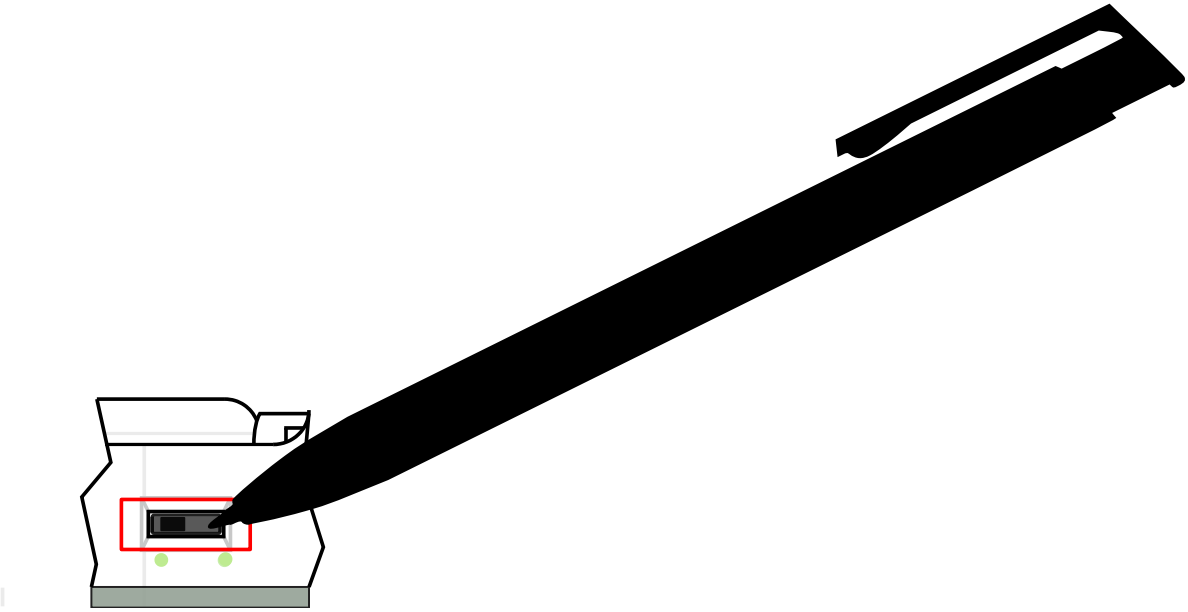
[1] *Connectivity test with mobile supported.*

Power connectivity

Prerequisite:

- during the test, the RJ45 cable has to deliver power according to PoE IEEE802.3af,
- the KRONE connector is properly crimped on the right PIN according to the RJ45 cable type (A or B),
- the KRONE connector is properly plugged on the NAPOE109ku device,
- no sink device is connected on the USB-C connector.

To test the power connectivity, set the dipswitch position to the left in the diagnostic mode activating the LED lightening.



If the power red LED is ON and steady, The KRONE connector is properly crimped on a PoE RJ45 cable. Consequently and the NAPOE109ku device is powered properly.

> ☛ *Each time the dipswitch is set from the right position to the left position, the device is rebooting once.*

> ⚠ After having completed the test of the power connectivity, set back the dipswitch position to the right to return to the nominal mode.

LED behaviour

Mode	Network activity LED behaviour	Information
Connectivity test	*On* for 250 ms then *off*	After power unplug/replug or immediately after the dipswitch is turned from right to left. The NAPOE109ku device is powered properly and crimped[1] on the PoE cable supporting network data.
Connectivity test	*blinking*	Blinking[2] as soon as network activity is detected over USB-C connector.
Nominal	*Off*	In nominal mode, the gibabit connexion LED and the network activity LED lightening are inactivated.

[2] *If the network activity LED is not blinking despite of an appropriate power supply leading to the test phone mobile which can not access to the network, try again after having restarted the switch.*

Mode	Gibabit connexion LED behaviour	Information
Connectivity test	*On* for 250 ms then *off*	After power unplug/replug or immediately after the dipswitch is turned from right to left. The NAPOE109ku device is powered properly and crimped[1] on the PoE cable.
Connectivity test	*On*	The device is connected to a network connexion supporting gigabit[1] (or behind a gigabit switch).
Nominal	*Off*	In nominal mode, the gibabit connexion LED and the network activity LED lightening are inactivated.

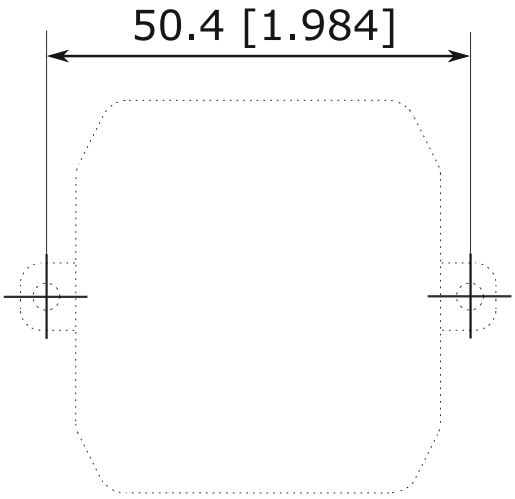
Mode	Red LED behaviour	Information
Connectivity test	*On (steady)*	The NAPOE109ku device is powered properly.
Nominal	*Off*	In nominal mode, the power LED lightening is inactivated.

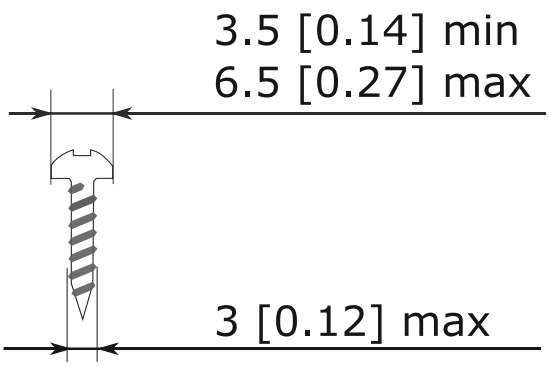
⚠ [1] conclusion worths only when no sink device is connected.

1.8 Device fixture

You can fix the NAPOE109ku device inside a junction box or inside a cable trunking by tightening some screws inside the ears provided for this purpose.

> ☛ *It is advised to finalize the crimping step on the KRONE daughter board and plug the not angled male connector of the provided USB-C cable on the USB-C connector to check that the host area is suitable to host the NAPOE109ku device with the cable plugged.*
>
> ☛ *For installation in smaller area, it is possible to manually cut the NAPOE109ku device ears to reduce its size.*
>
> ☛ *The screw are not provided because they are depending on the host material.*





Dimensions are in: mm [inch]

Tolerances: 0.1 [0.004]

1.9 Device uninstallation

To uninstall the NAPOE109ku device from the junction box or from a cable trunking:

- untighten the ears screws,
- unplug the USB-C cable,
- cut the cable clamp,
- unplug the KRONE connector from NAPOE109ku device.

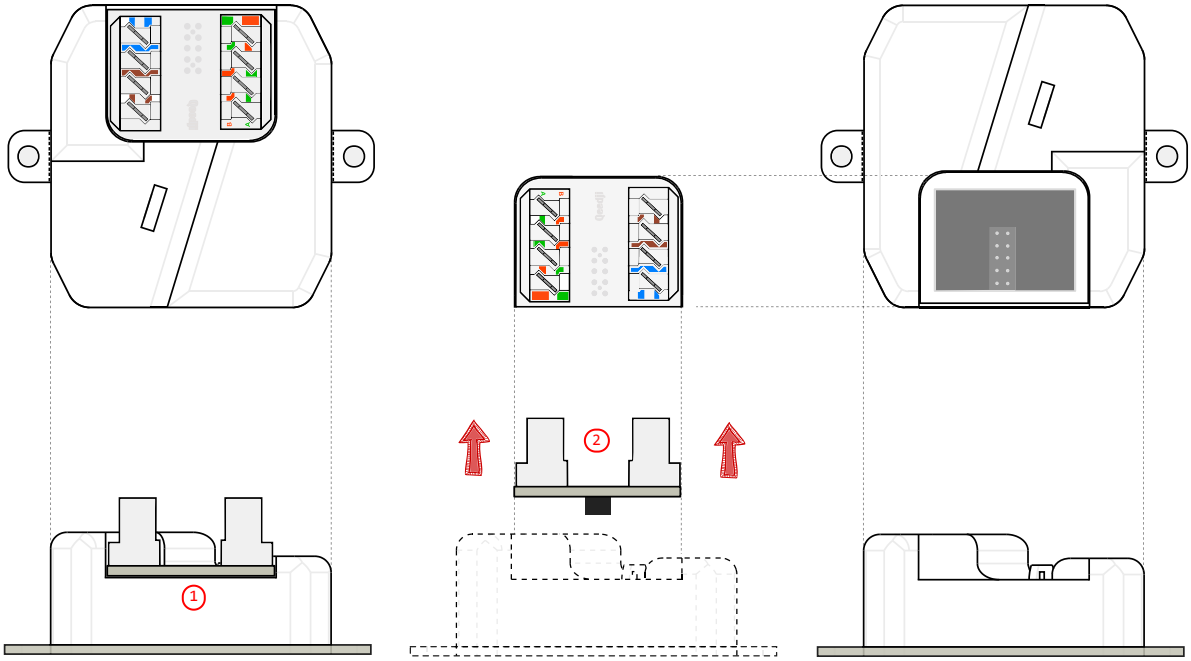
For further information, refer to the chapter § KRONE connector removing.

> ☛ *In case you had to install the device in another location, you have to uncrimp the current KRONE connector from the Ethernet multi-stranded cable. For further information, refer to the chapter § KRONE connector crimping.*

1.10 KRONE connector removing

To remove the KRONE connector:

- stand the device with the ears to the bottom like explained (1) and hold the device with your hand,
- hold the KRONE connector with your other hand and remove it vertically (2).

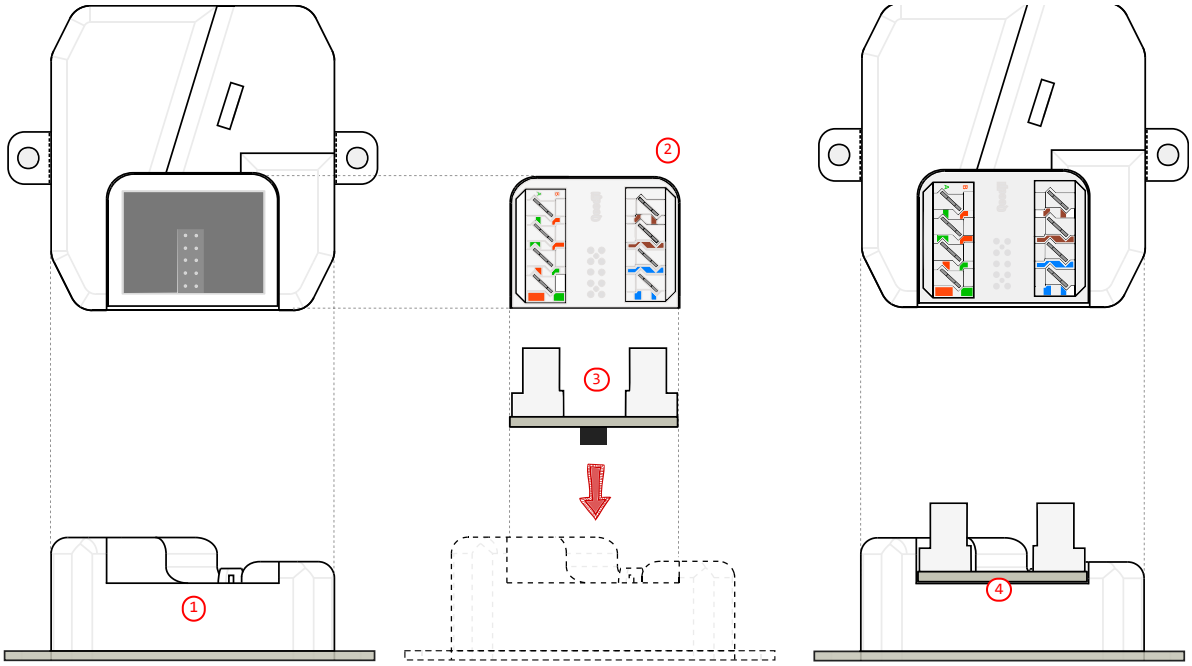


1.11 KRONE connector insertion

To insert the KRONE connector:

- stand the device with the ears face to the bottom like explained (1) and hold it with your hand,
- hold the KRONE connector with your other hand and turn it in the right sense (2) (round corners turned towards the clamping ring and insert it vertically (3) .

When it is properly installed, the KRONE connector is completely stuck on device case (4).



Part II

Technical information

2.1 Technical specifications

Model	Manufacturer
NAPOE109ku	Qeedji

Power supply	Information
PoE IEEE802.3af	POE power supply input: ES1 / PS2 (48 V DC – 0.27 A max)

Network	Other information
KRONE connector	10/100/1000 Base T

Data	Information
USB-C connector	USB 2.0 and USB 3.0

Power delivery	Information
USB-C connector	Power: 5.15 V - 1.45 A typ. Power: 5.47 V - 1.92 A - 9.4 W max.

Operating temperature	Storage temperature
+0 °C to +35 °C	-20 °C to +60 °C
+32 °F to +95 °F	-4 °F to +140 °F

Operating humidity	Storage humidity
< 80 %	< 85 %

Weight	Dimensions (W x H x D) (fixing ears and KRONE connector included)
39 g	56.5 mm x 46.7 mm x 24.5 mm
0.08 lb	2.224 " x 1.838 " x 0.964 "

Plastic enclosure flame rating
UL 94 V-0

Warranty
1 year

2.2 Conformities

EUROPE

In conformity with the following European directives:

- `LVD 2014/35/EU`
- `EMC 2014/30/EU`
- `RED 2014/53/EU`

Part III

Contacts

3.1 Contacts

For further information, please contact us:

- **Technical support**: support@qeedji.tech,
- **Sales department**: sales@qeedji.tech.

Refer to the `Qeedji` Web site for FAQ, application notes, and software downloads: https://www.qeedji.tech/

```
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Fax: +33 (0)2 23 20 22 59
```

Part IV

Appendix

4.1 Appendix: Type B or type A RJ45 cable PIN out

Type B (T568B) RJ45 connector PIN out:

PIN	wire color
①	white + orange
②	orange
③	white + green
④	blue
⑤	white + blue
⑥	green
⑦	white + brown
⑧	brown

Type A (T568A) RJ45 connector PIN out:

PIN	wire color
①	white + green
②	green
③	white + orange
④	blue
⑤	white + blue
⑥	orange
⑦	white + brown
⑧	brown

4.2 Appendix: tablet installation on a glass wall with a NAPOE109ku device hidden in the ceiling

This is an illustration of a `NAPOE109ku` (1) device installed and hidden in the ceiling (2). It is connected to a POE switch (not visible in the illustration) with an RJ45 cable (3).

The tablet (4) is installed on a glass wall. The `NAPOE109ku` (1) device allows to provide power and data through the provided female USB-C to female angled USB-C 2 meters cable (5).

> ☛ *It is advised to install the USB cable in a cable trunking.*