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SPUX KNX extension User Manual V1.00

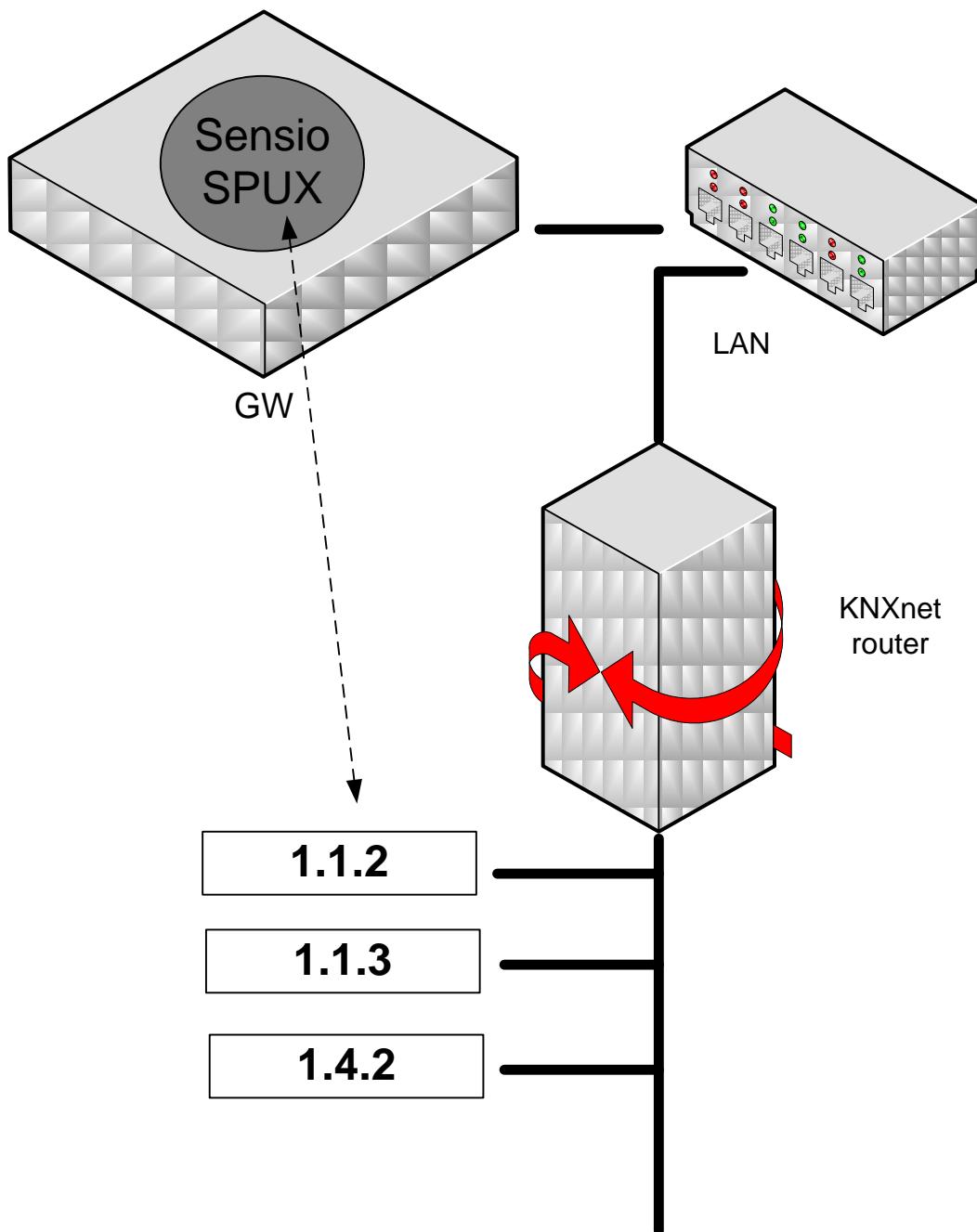
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2 Introduction

This document describes the usage and specifications for the KNXnet extension in the SPUX service. This allows the SPUX to communicate with KNX devices through KNXnet routers/interfaces on TCP/IP, as shown below. Note: KNX USB interfaces cannot be used. The SPUX communicates only with KNX group addresses (not physical addresses). An arbitrary number of KNXnet modules may be connected. The SPUX may communicate either using “routing” protocol or “tunneling” protocol. Tunneling or routing must be selected in the configuration.



Figur 1

3 Communication parameters

The SPUX will discover KNXnet routers on multicast address 224.0.23.12 on port 3671, according to the KNX standard.

The discovered devices will be reported to the server.

4 SPUX configuration commands for KNXnet

4.1 Enabling KNXnet communication

Use the “knx” command to enable/disable KNXnet router communication:

Disable:

```
knx 0
```

Enable routing mode:

```
knx 1
```

Enable tunneling mode:

```
knx 2
```

The command is usually placed in the config.spux file.

4.2 Display discovered KNXnet modules

Use the debug command “d_knx” to print discovered KNXnet modules. The MAC address of the KNXnet module is used to address the individual KNXnet module.

Example:

```
d_knx
```

```
Knx_net_device IP=10.0.11.223 MAC=00:24:6d:00:a5:46 name="KNX IP Interface 730" nState=CONNECT_OK bUDPOpen=1
```

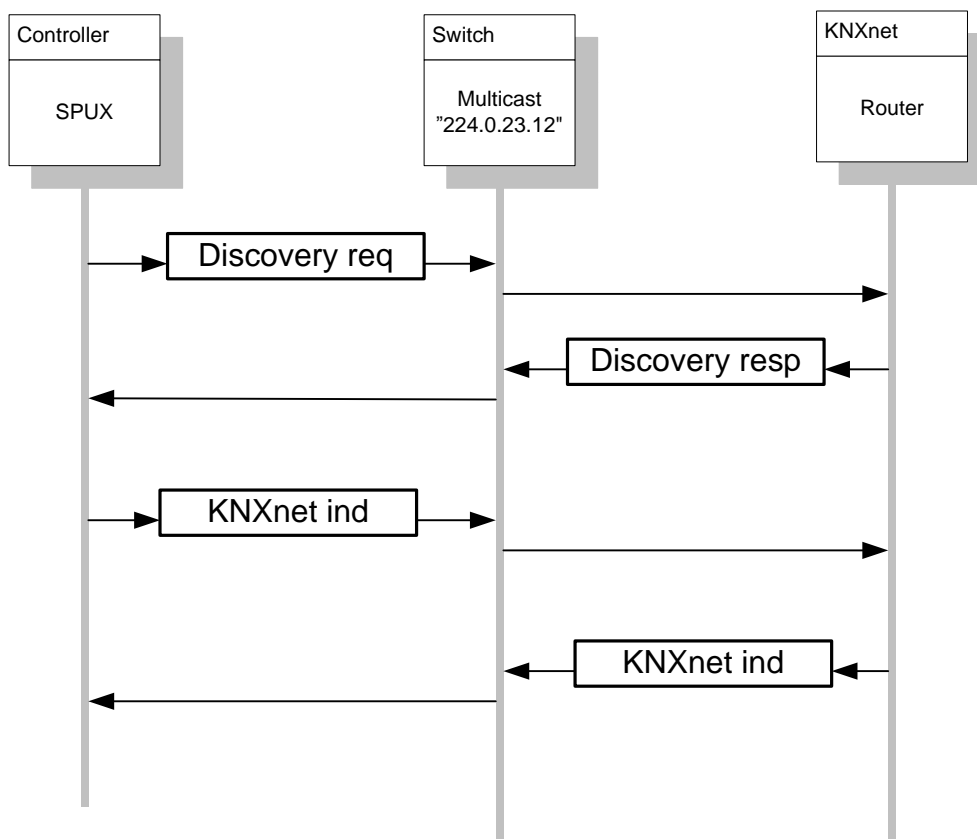
5 Compatible KNXnet devices

KNXnet devices from multiple vendors will be compatible. The following devices are tested:

- ABB IPR/S2.1 router
- Siemens IP router N146/02
- EIBMARKT IP Router PoE N000402
- EIBMARKT IP Interface PoE N000401

6 Routing mode

Routing mode is the simplest mode of communication. The protocol is stateless, and packets may be sent willy-nilly in both directions. The communication is unreliable (unacknowledged) UDP via multicast IP address. The benefit of “routing” mode is that any number of clients may access the KNX bus simultaneously, and it’s very simple to use. Ample buffering of packets is provided in the KNX router (typically 150 KNX messages). There are special packets for error indication (lost) and buffer “high water” indication (busy).



Figur 2

7 Tunneling mode

The “tunneling” mode protocol is “connection oriented”, i.e. a communication channel is established that must be maintained and decommissioned after use. The protocol is reliable in the sense that it has end to end confirmation. The protocol has states, will handle timeouts, buffering and re-transmissions, and is much more complex than routing mode. In addition, the KNXnet device usually allows only one connection at a time. The benefit of “tunneling” mode is that data transfer is reliable and that it’s possible to use the much cheaper KNXnet Interface device.

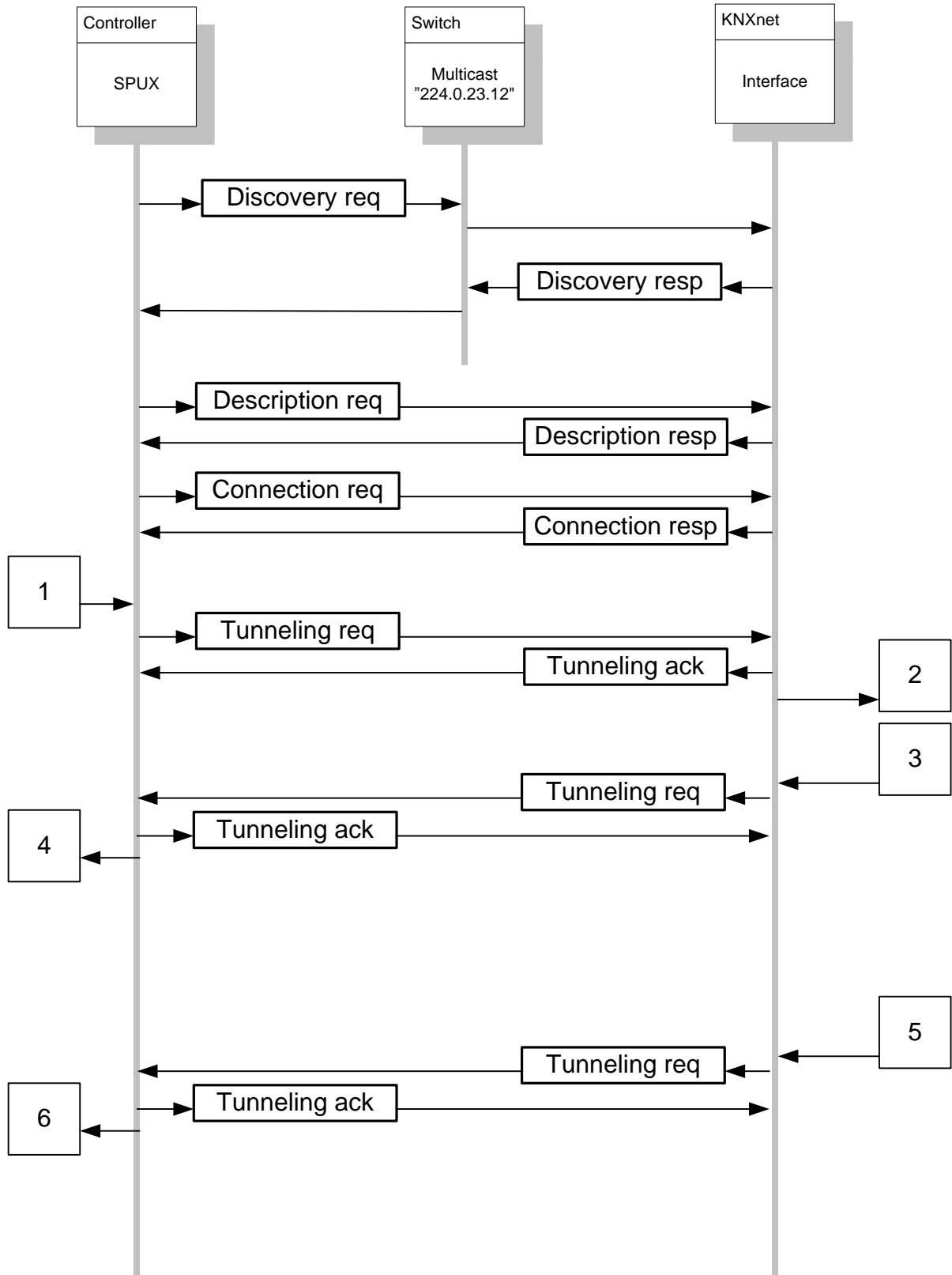
Referring to the figure below, the application requests a KNX message to be sent at point [1] and get the confirmation at point [4], which is actually an echo of the transmitted message (Point [2][3]). The protocol will retransmit if the echo is not received within the timeout limit. When the KNX device on the bus acts on the message, it may decide to report a status message back (Point [5]), which in turn may be used as a confirmation to the user through the application (point [6]).

Tunneling ack timeout is 1200 millisec.

KNX confirm (echo) timeout is 3000 millisec.

Retry packet count is 3.

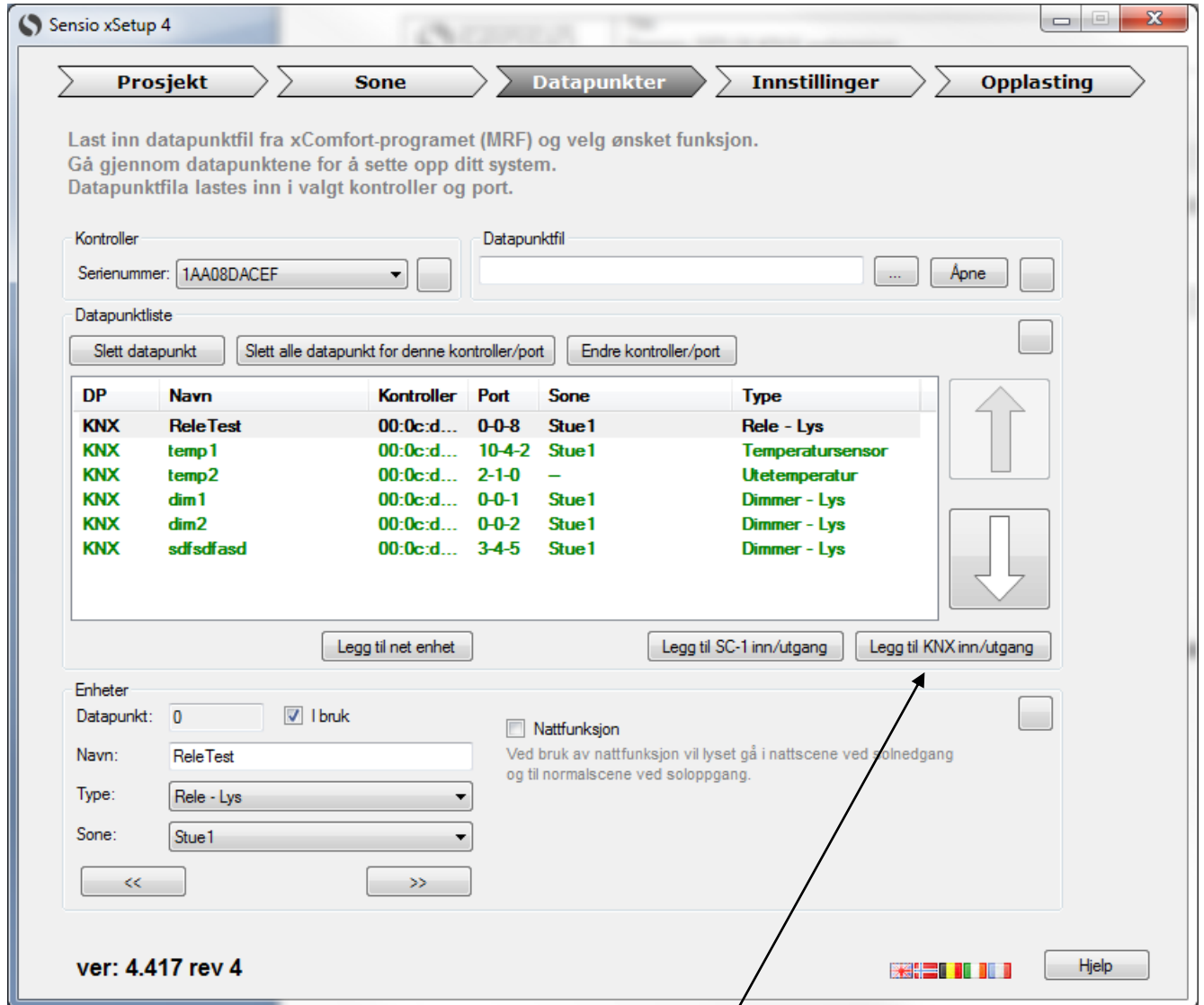
After exhausted retries, the data packet is discarded and error message sent to server.



Figur 3

8 Using KNXnet from xSetup

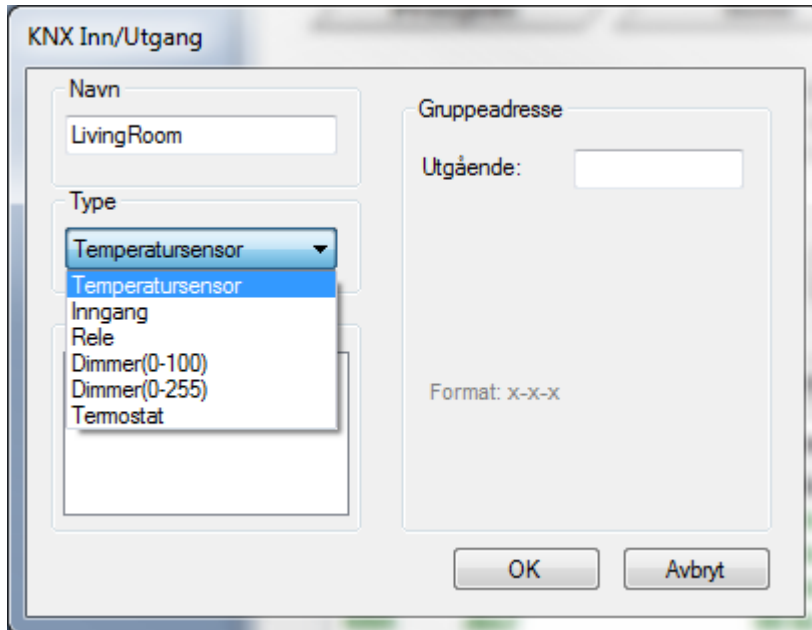
The devices has to be entered one-by-one in the list.



Add KNX devices in data point list

8.1 Add KNXnet device

Select the KNXnet router from the list of MAC addresses, select the type of device and enter the KNX group address in the format x-x-x.



KNX Inn/Utgang

Navn
LivingRoom

Type
Temperatursensor
Inngang
Rele
Dimmer(0-100)
Dimmer(0-255)
Termostat

Gruppeadresse
Utgående:

Format: x-x-x

OK Avbryt

9 Using KNXnet from Studio

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