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Integrating AV-Applications into KNX

KNX AV Conference
Johannes Geiss
Weinzierl Engineering GmbH

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Agenda

Weinzierl Engineering GmbH – The Company

KNX Control for Audio-Video

What is BAOS?

KNX BAOS Modules and Devices

ETS database entries

About Weinzierl

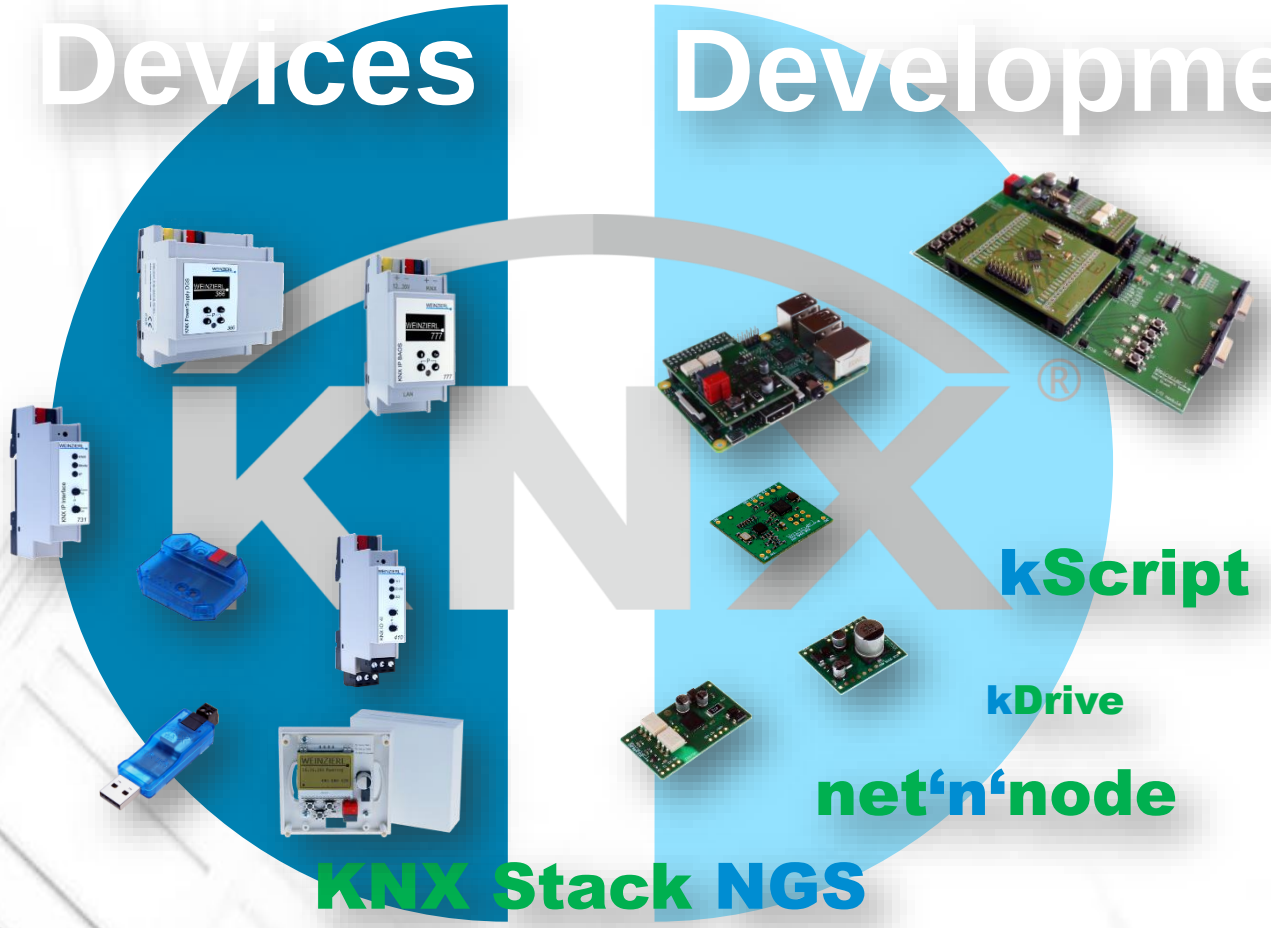
Founded in 2001

Location

- Burgkirchen an der Alz
- Southeast in Bavaria
- About 110 km Southeast from Munich

Development of hardware and software for building automation

Products


Devices
Development
kScript
kDrive
net‘n‘node
KNX Stack NGS

System Solutions for KNX

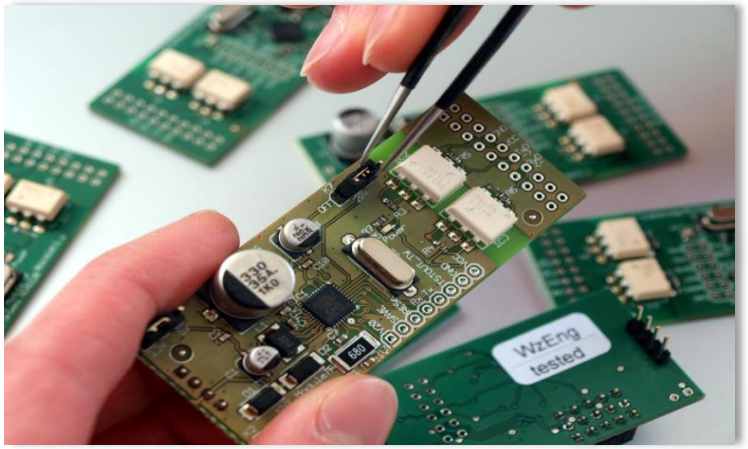
KNX Modules

KNX Stacks

KNX Tools for developers

Services

- Hardware / Software Development
- KNX accredited test lab



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KNX Control for Audio-Video

Integration into building control

Usage of KNX design switches

Integration into visualization tools

KNX Infrastructure

- Integration into scenes with lighting, shutters, etc.
- Usage of KNX timers
- Usage of KNX topology via Bus, RF, IP, remote access

Audio-Video in KNX Standard

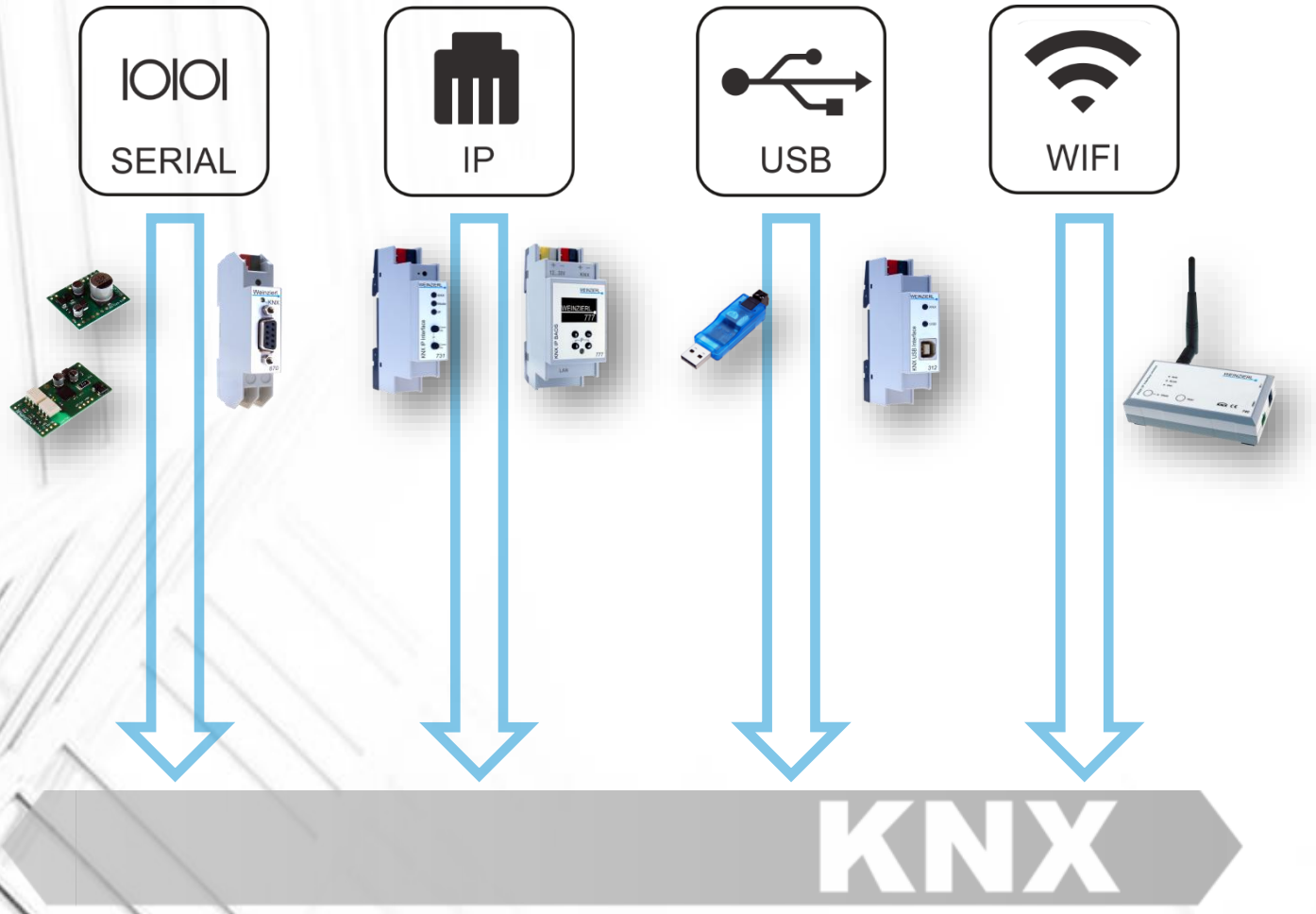
Volume 7: Application Specifications

Part 70: Control of Audio and Video Equipment

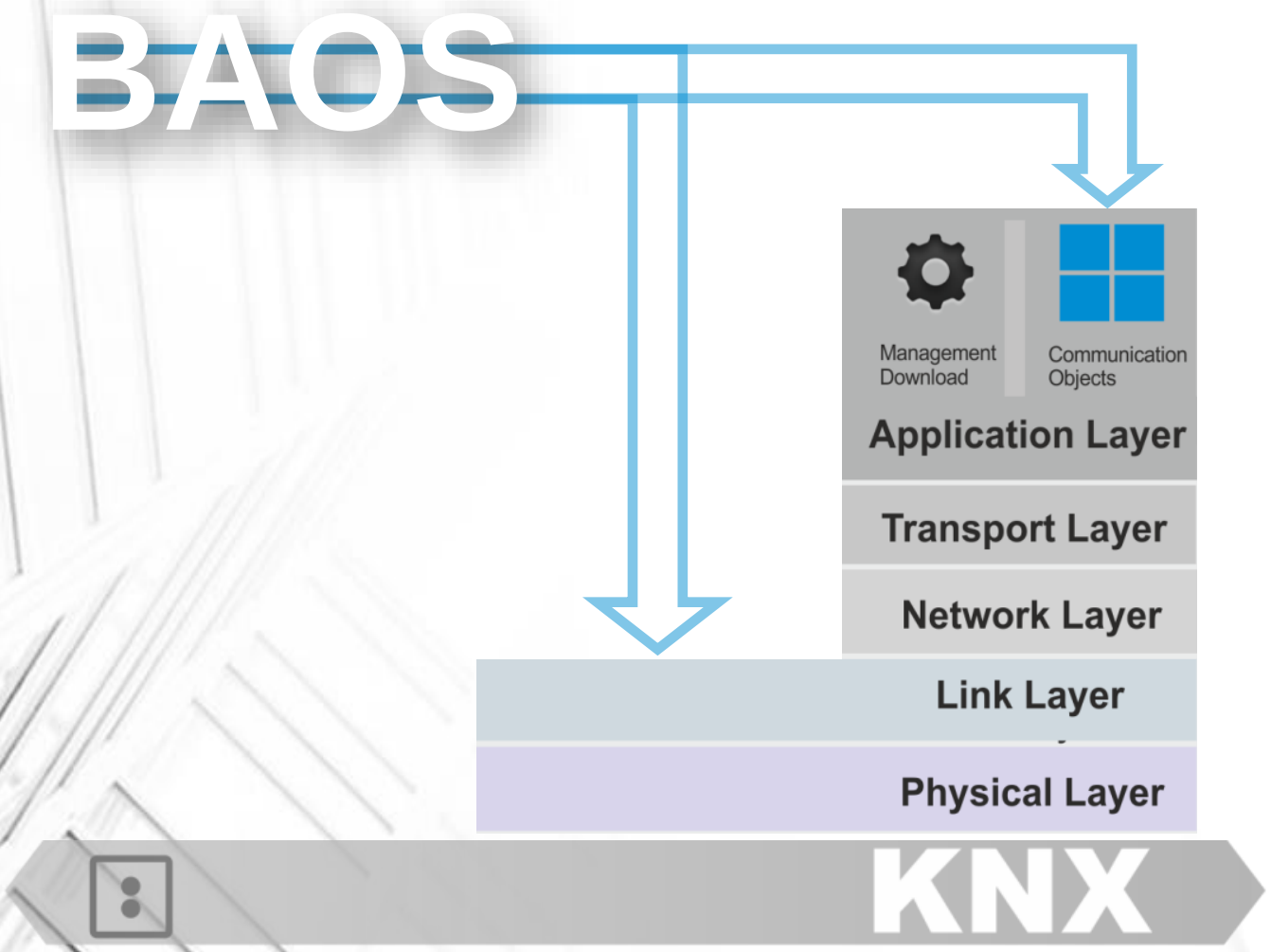
Chapter 1: General Principles

- Interworking
- KNX data point types for AV
- In-line with other applications like dimming

Access to the KNX Bus

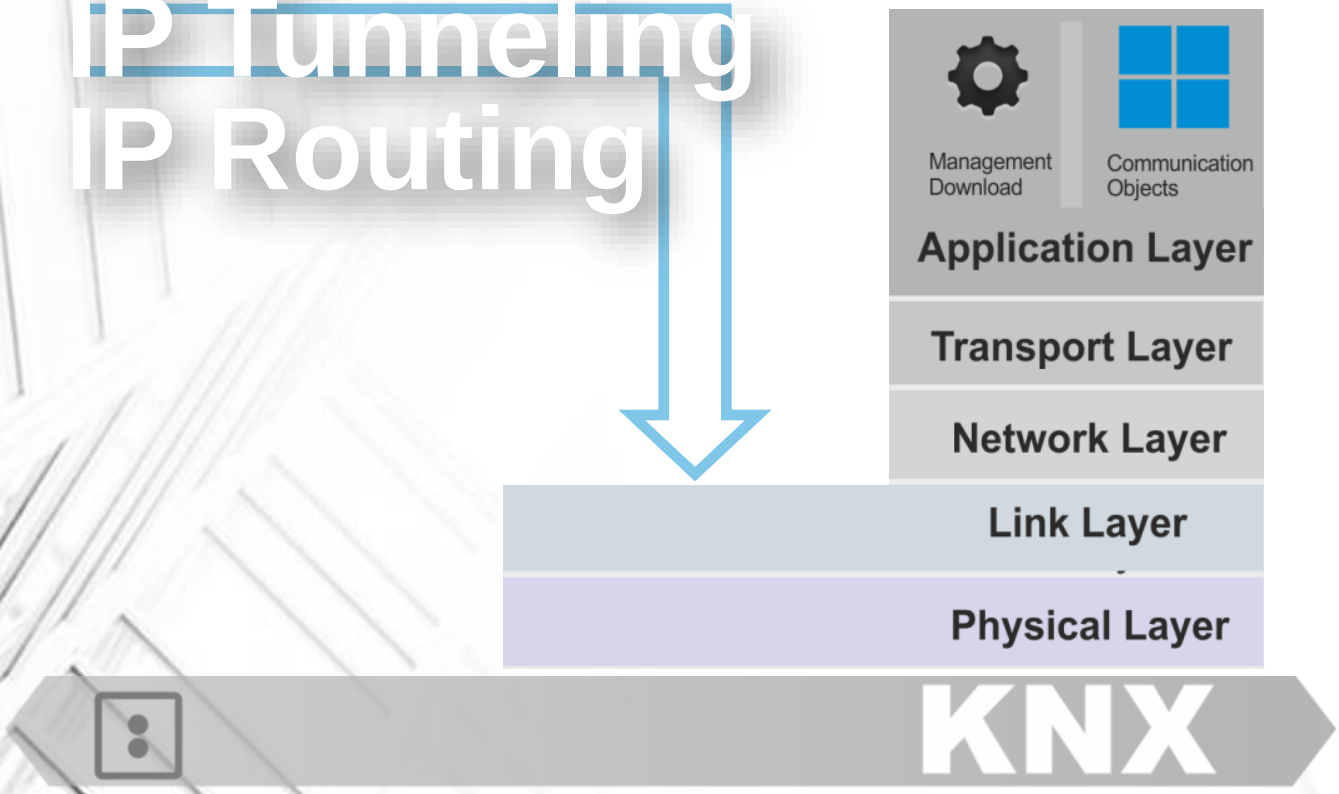


Access on different layers



ETS: Telegrams

USB
IP Tunneling
IP Routing



What is BAOS?

Bus Access and Object Server

Bus Access

- Telegram level
- Programming interface for the ETS

Object Server

- Object Level
- Universal IP Gateway for building automation
- Residential Gateway
- Allows a fast integration of non-KNX devices into a KNX network

Application areas for BAOS

Connecting devices to KNX

- Sensors, actuators
- Heating, ventilation
- Audio,…

Typical use case

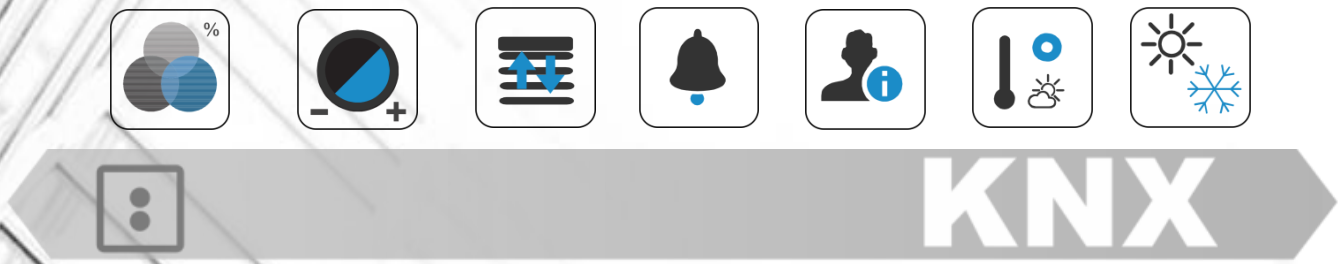
- Small and medium quantity
- Expansion of existing devices

Advantages

- Low investment
- Rapid development
- Certified system software

ETS product database

- Available as generic
- Individualization possible



BAOS: System integration

KNX Telegrams

Structure & values

Configuration structure & links

BAOS protocol: Object Server

BAOS

- Bus Access and Object Server

Abstraction

- Separates KNX handling from client
- Client communicates to BAOS module
- No KNX telegrams to be handled by client

BAOS data

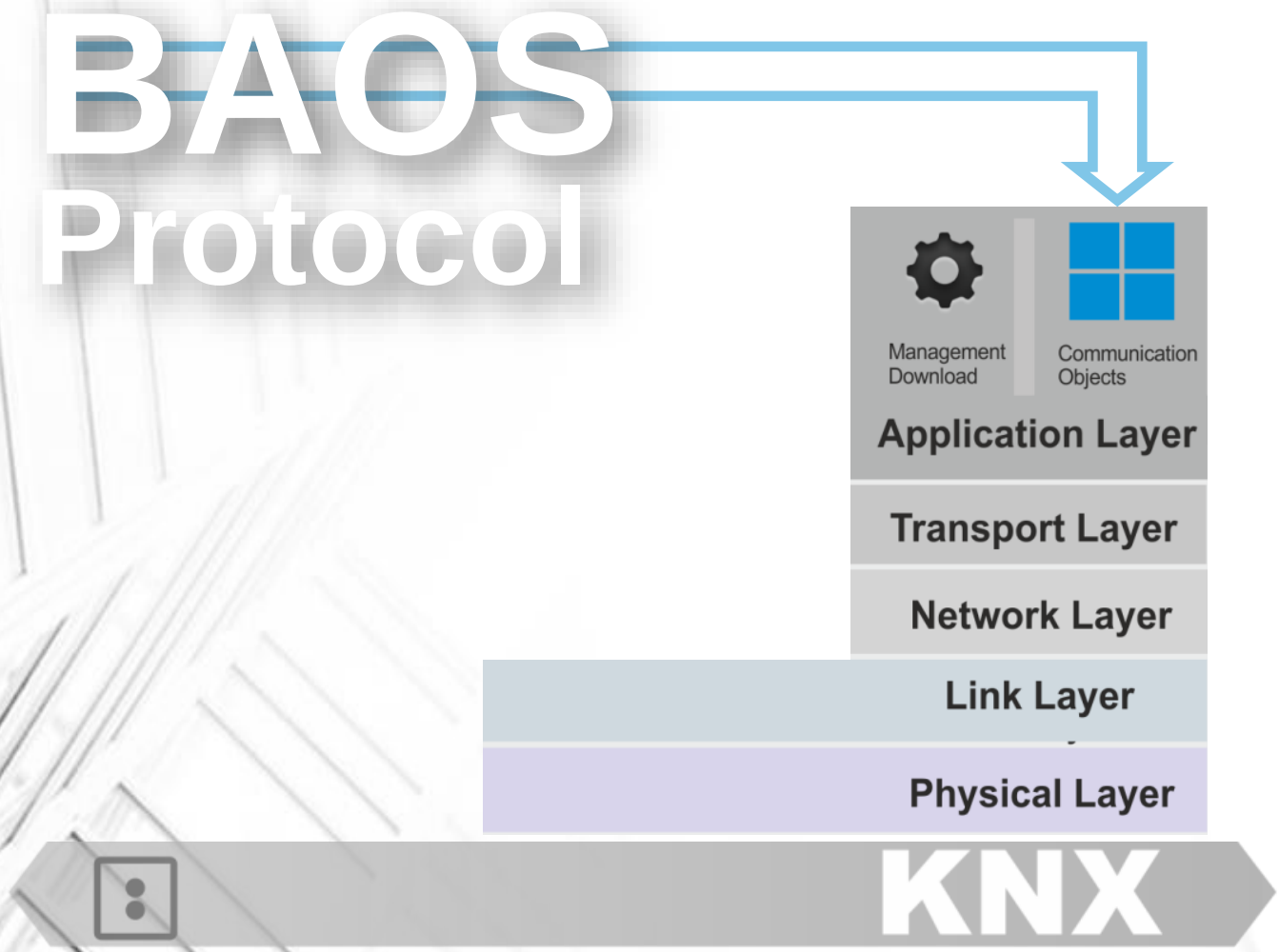
- Data points (group objects)
- Parameters (ETS)
- Server items (Module related)

Advantages of the object server

The object server always keeps the current values

- Even if the application is not connected
- No group-value-read required
- Short latencies

Application: Data points



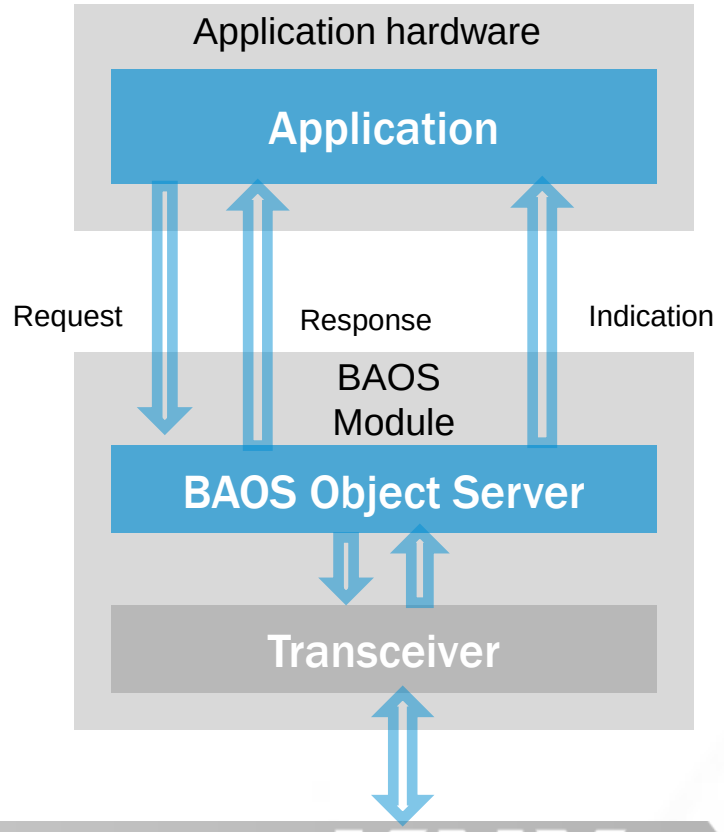
BAOS Protocol: Communication

Access to communication objects

- GETDATAPOINTVALUE.REQ
- GETDATAPOINTVALUE.RES
- DATAPOINTVALUE.IND
- SETDATAPOINTVALUE.REQ
- SETDATAPOINTVALUE.RES

Access to ETS parameters

- GETPARAMETERBYTE.REQ
- GETPARAMETERBYTE.RES



KNX BAOS Modules

Board

- Microcontroller
- KNX Transceiver

Certified KNX Stack

Interface to communication objects

- Up to 1000 data points

Interface on Telegram level

Serial protocol based on FT1.2

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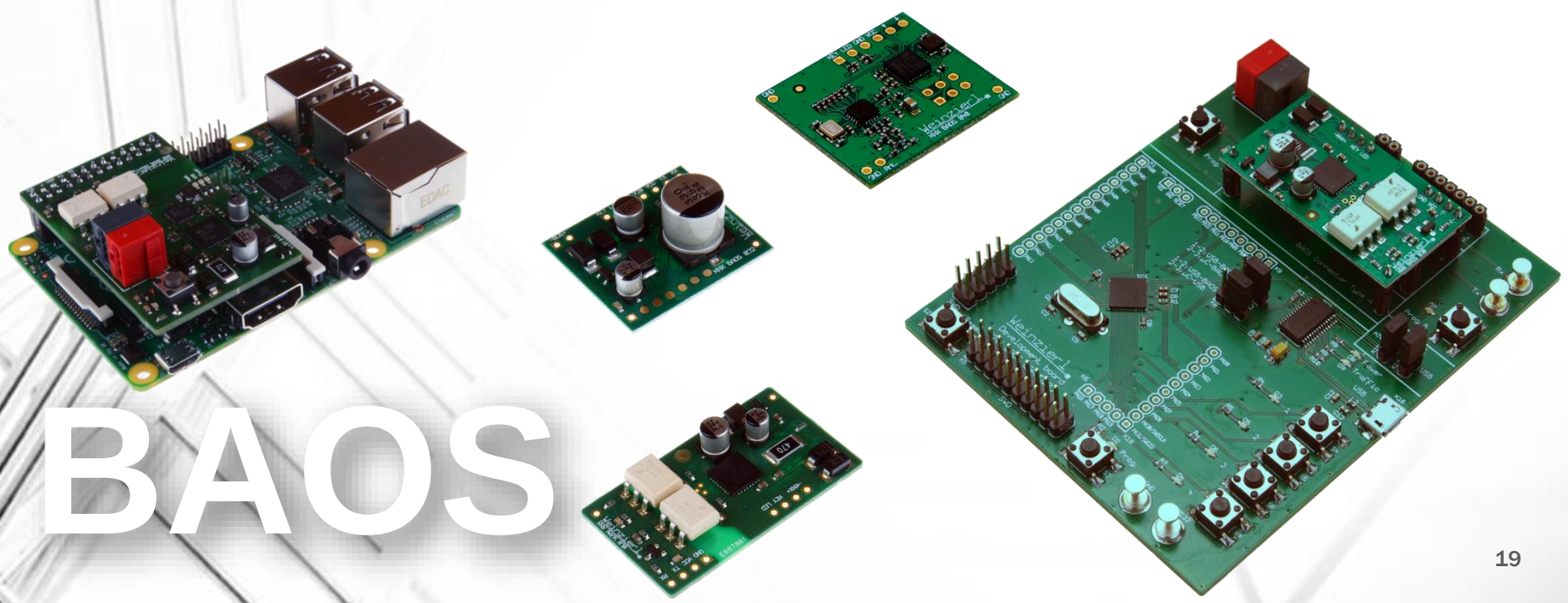
KNX BAOS Modules

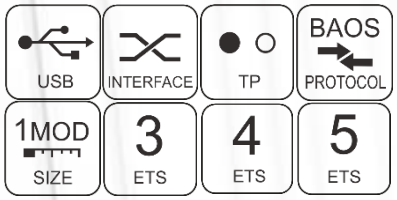
KNX BAOS Modules with certified Stack

- KNX BAOS 830 with galvanic isolation
- KNX BAOS 832 bus powered
- KNX BAOS 838 kBerry for Raspberry PI®
- KNX BAOS 840 wireless with KNX RF



BAOS

KNX USB Interface 312



Installation width 1 HP (18mm)

Support of KNX Long Frames

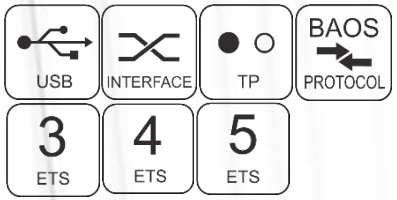
Improved user interface

- Visualization of communication errors

Support of BAOS for connecting non-KNX devices to KNX via USB

BAOS

KNX USB Interface Stick 332



Compact shape

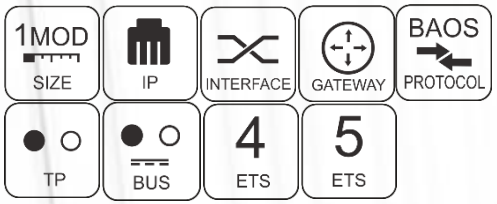
Support of KNX Long Frames

Improved user interface

- Visualization of communication errors

Support of BAOS for connecting non-KNX devices to KNX via USB

KNX IP BAOS 773 / 774



BAOS

KNX IP BAOS with 18 mm width

- Up to 5 simultaneous KNXnet/IP Tunneling connections

Powered by the KNX bus

Improved user interface

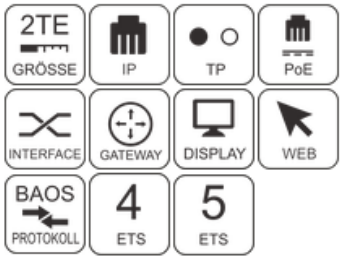
- Visualization of communication errors

BAOS Binary Protocol V2

- UDP/IP or TCP/IP

Support of 250/1000 data points

KNX IP BAOS 777



Universal KNX IP Gateway

KNX IP Interface

Object Server (BAOS)

Integrated Web Server with visualization

Feature richness

- Flexible configuration on the device, via web browser or ETS
- Timers, NTP
- History, E-Mail
- Structured and generic database
- ….

IP BAOS

BAOS – Web Services

For web applications

For mobile devices

- iOS (iPhone, iPad)
- Android devices

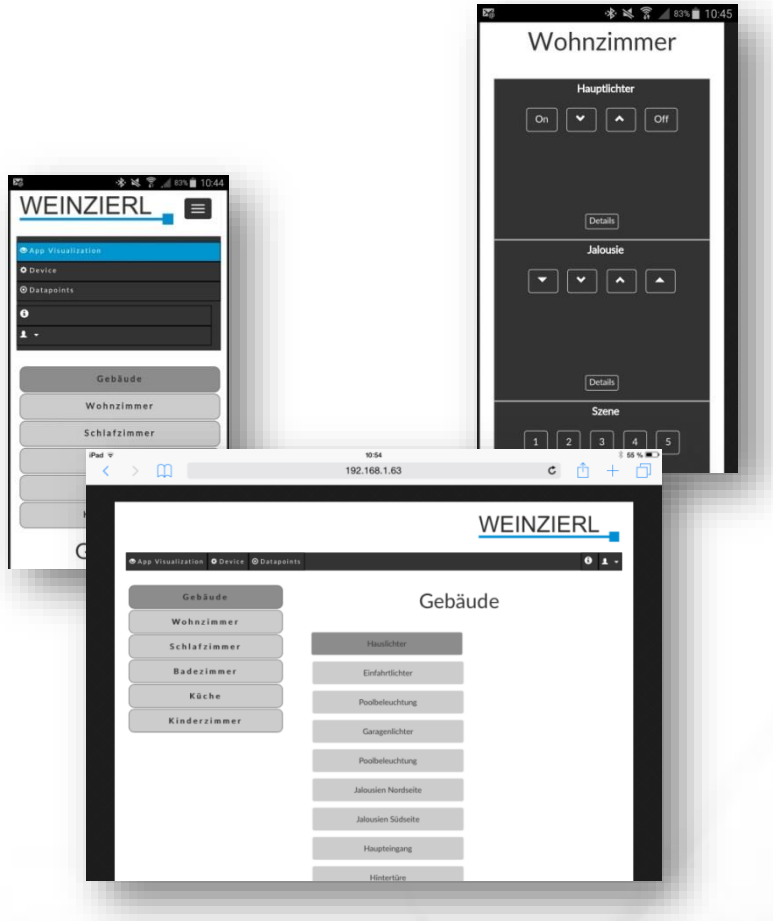
Based on JSON (Java Script Object Notation)

Public API (Application Programming Interface)

Demo available

KNX IP BAOS 777

- RESTful services
- Web visualization



KNX IP BAOS 777: ETS entry

Generic

- Flat list of data points
- For getting started

Structured

- Building structure with rooms
- Functions with data points
- Generation of semantic information
- e. g. for visualizations

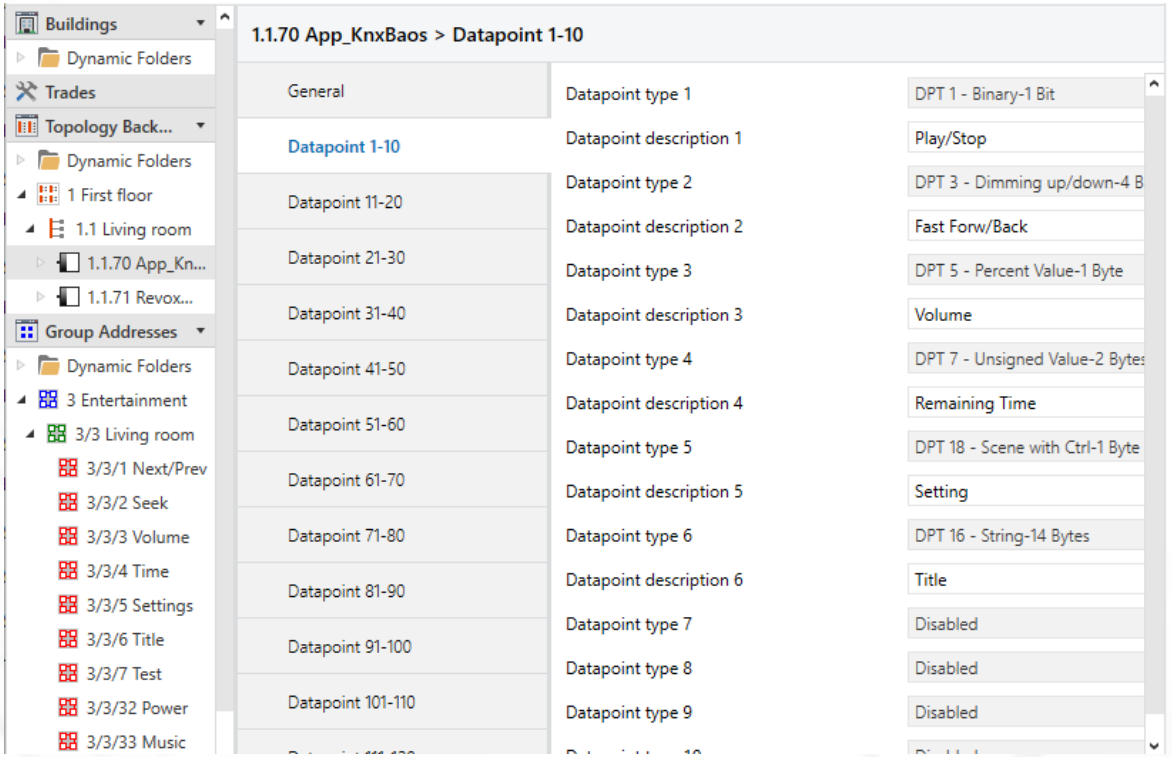
Individual

- Tailored for your application

ETS database entry

Generic ETS database entry

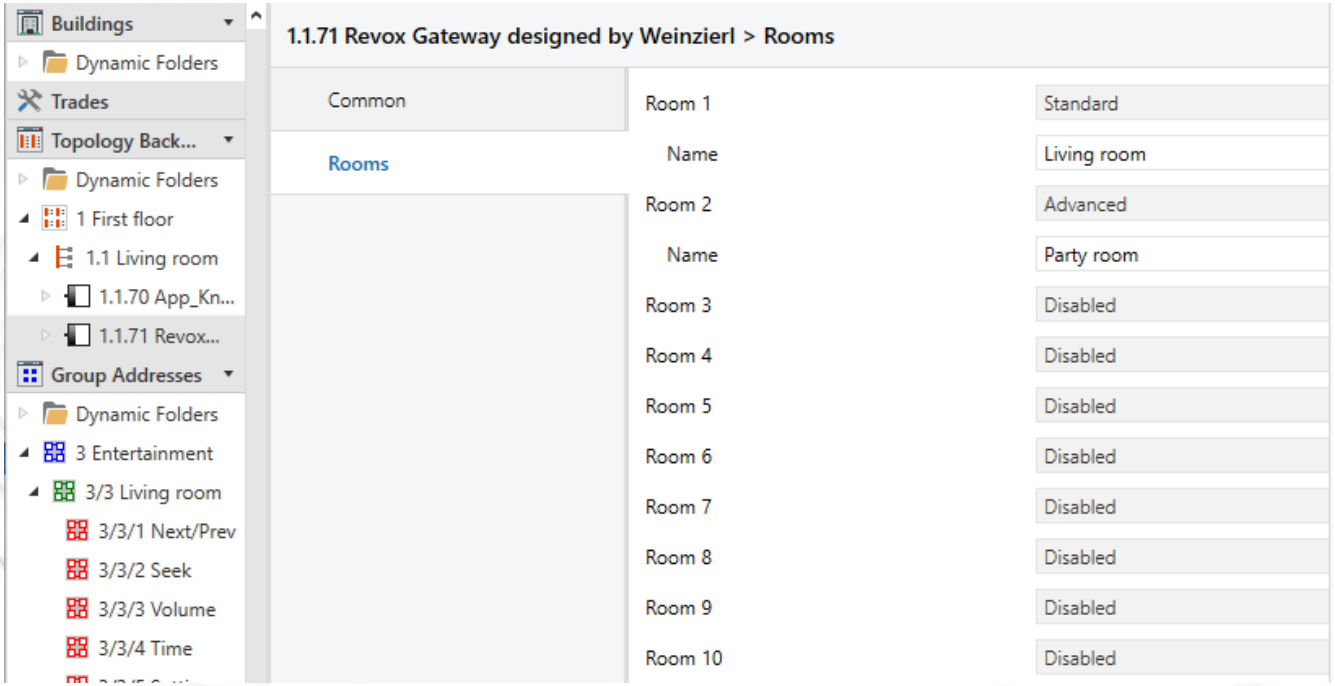
- For a quick start
- DCA for import/export



ETS database entry

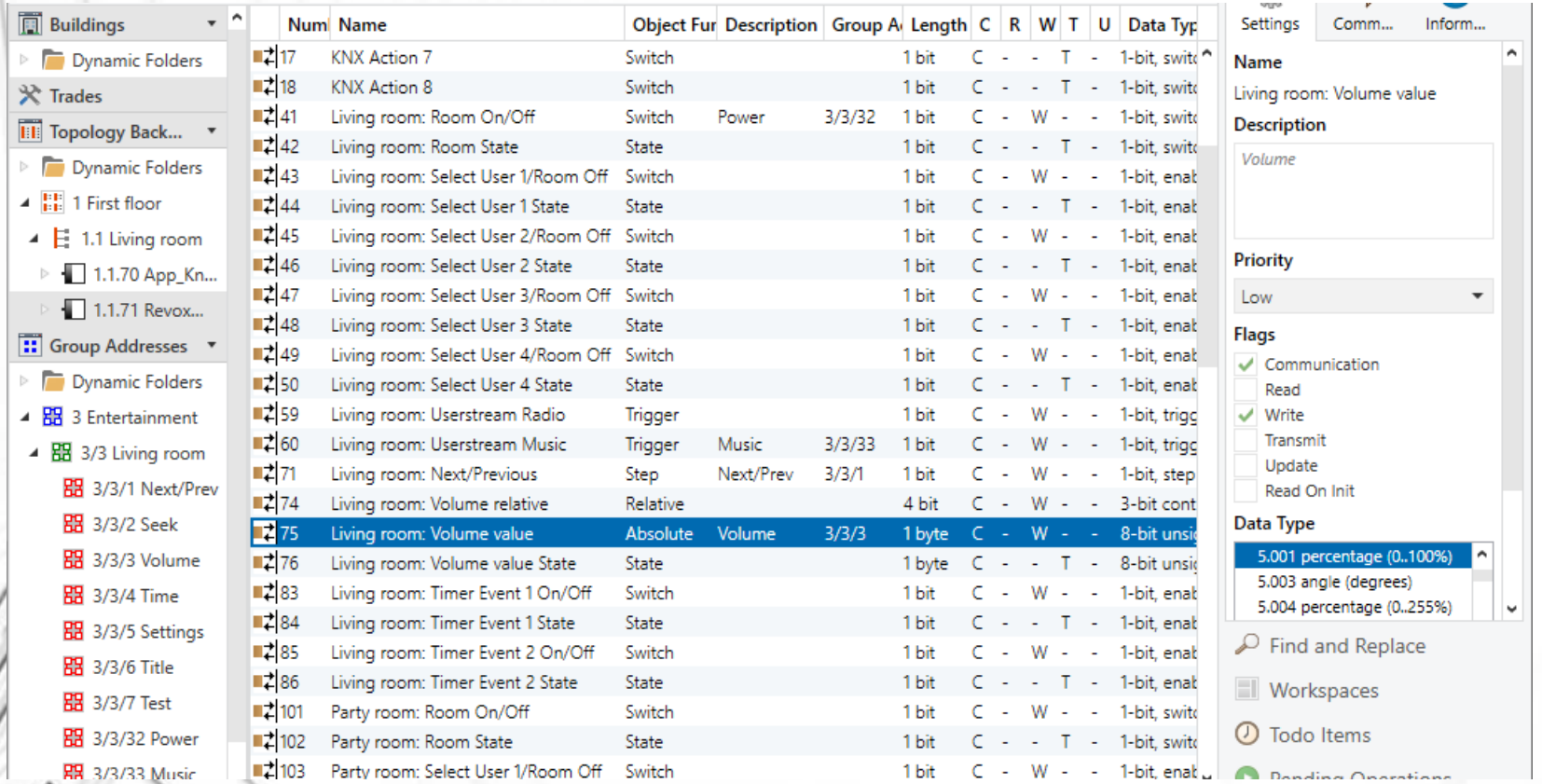
Individual ETS database entries

- By the manufacturer using KNX MT
- As service from Weinzierl Engineering



ETS database entry

Individual ETS database entries



Net‘n Node

Bus monitor program

- Free edition

Multiple port architecture

- USB, IP, Serial

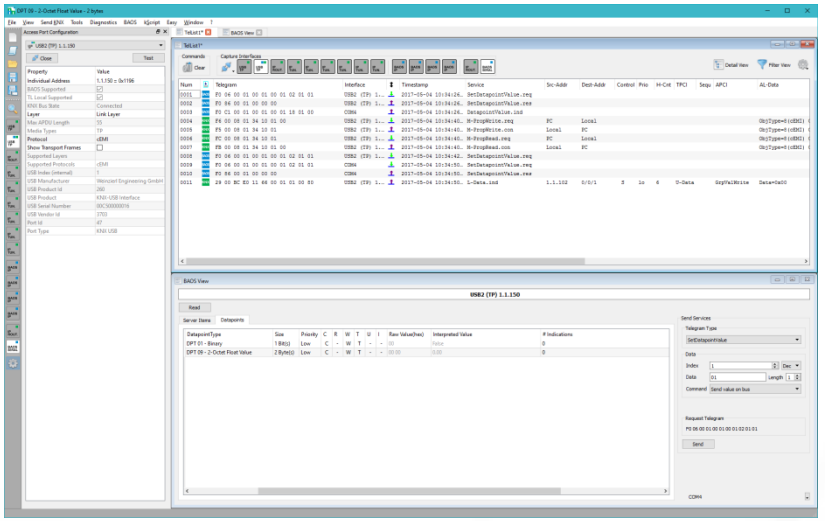
For all KNX media

- TP, PL, RF, IP

For BAOS Protocol

- BAOS view

net‘n node

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