KNX Installation Bus System
Configuration and Commissioning

KNX SYSTEMS

Building Control

- Protective measures
- Installation technology
- Intercom systems
- Lighting technology
- Telecommunication
- Fire alarm systems
- Hazard alarm systems
- Training systems
BASIC FUNCTIONS
- Switching
- Dimming
- Blinds and shutters
- Binary inputs

PROGRAMMING
- ETS4 software
- Alarm control
- Touch panel

PROJECTS
- Dimming
- Alarm system

NETWORKS
- Ethernet
- DALI

SENSOR AND ACTUATOR SYSTEMS
- Weather station
- LOGO!
- Blinds and shutters

COURSEWARE
- Manuals
- Transparency sets
- Technocards

INFORMATION AND CONSULTING
KNX INSTALLATION BUS SYSTEM

THE INTELLIGENT BUILDING

Weather station

Project: Dimming

Room Controller

Access control

Project: Alarm functions
PLC Board 24 V with KNX extension module

KNX Professional Programming Board

Colour Touch Panel

Technology model: Blind
LEARNING OBJECTIVES

- Configuring KNX systems
- Commissioning and troubleshooting
- Documentation and maintenance

41 220  KNX Professional Programming Board

in the DIN A4 system, with the following components:

- 1 KNX power supply
- 1 USB programming interface
- 1 binary input, 8-X with 8 simulation switches, manual/automatic operation
- 1 8-X binary output with manual/automatic operation
- 1 1-X dimmer actuator, manual/automatic operation
- 1 4-X KNX push button sensors
- 1 2-X KNX push button sensors
- 1 2-X button with 2-X KNX binary input and flush-mounted blind actuator
- 11 indicator lamps
- Sockets for onward connection to other systems
- Industrial blind socket

Application examples:

- **Switching:**
  Logic, delay, time, staircase, status

- **Binary input:**
  Switching, edge, cyclical, dimming, blinds

- **Push button sensor:**
  Dimming, switching, edge, blind
KNX applications

Residential house

Consisting of:  
- Entrance area  
- Living room  
- Bedroom  
- Kitchen / dining room  
- Office  
- Hallway

Administration building

Consisting of:  
- Outdoor area  
- Entrance area  
- Lobby  
- 2 office rooms  
- Recreation rooms

Recreation centre

Consisting of:  
- Entrance area  
- Sanitary facilities  
- Service centre  
- Billiards room

Office building with outdoor area

Consisting of:  
- Outer lighting  
- Staircase  
- 1 large-area office  
- 2 individual offices with blinds
KNX Installation Bus System

Hardware

KNX Professional Programming Board

- Mains voltage input
- Power supply
- Blind actuator, flush-mounted with 2-X binary input
- Bus coupler BCU 2
- Bus coupler BCU 1
- 2-X button
- 2-x push button sensor
- 4-x push button sensor
- USB port
- Input device, 8 inputs

Templates for exchange

- 41 221 Residential house
- 41 222 Administration building
- 41 223 Recreation centre
- 41 224 Office building with outdoor area
Switching actuator 8-X
Dimming actuator
Blind socket

System plug for connecting the projects

2 simulation switches connected to the inputs of the binary input

LEDs and incandescent lamps to simulate the outputs

6 simulation buttons connected to the inputs of the binary input device
KNX INSTALLATION BUS SYSTEM

SOFTWARE

KNX programming environment

LEARNING OBJECTIVES

✓ Configuring KNX systems
✓ Commissioning and troubleshooting
✓ Documentation and maintenance

KNX programming environment

- Configuration and commissioning automation solutions in residential and functional buildings
- Functions for resetting and restoring
- Full drag & drop functionality
- Editing feature within the working window
- Clear display of the parameters
- Connection with the bus via USB interface, network or internet
- Reports for project documentation
- Administration of different project databases

Installation requirements:

- IBM-compatible PC with Windows Vista, Windows 7 or Windows XP, 32 / 64 bit, monitor resolution 1024 x 768 min. 2.0 GHz and 2 GB RAM
- 20 GB hard disk memory (without projects)
- USB, RS232 or IP interface, depending on the hardware connection
ETS4 Lite and ETS4 Professional

The KNX programming environment is used for the planning and configuration of intelligent KNX home and building control. It supports the execution of home and building control projects in the following phases:

1. Configuration
2. Commissioning
3. Project documentation
4. Diagnosis and troubleshooting

90 144  KNX programming environment  ETS4 Lite
- The execution of individual projects up to max. 20 devices in a line, with bus access is possible, without any time restriction.
- For schools and vocational training

90 145  KNX programming environment  ETS4 Professional
- Full software version without any limitation

90 146  KNX programming environment  ETS4 Trainer Package
- 1x ETS4 Professional, 10x ETS4 Lite, 2x Home and Building Control manual
- For schools and vocational training

Accessories

80 544  USB Programming Connection Line
41 002  KNX Professional Connection Line
HARDWARE

Alarm Control Board / KNX Interface

LEARNING OBJECTIVES

45 000 Alarm Control Board

✓ Configuration and commissioning of a security alarm system
✓ Selection of suitable detectors and sensors
✓ Programming of the security alarm system via an LCD display or a PC
✓ Maintenance work, testing the detectors used
✓ Use of different activating devices, selection according to security requirements
✓ Commissioning an access control system
✓ Integration in a KNX system

45 010 KNX Interface Board

✓ Connecting security alarm systems with a KNX system
✓ Forwarding the signals of the security alarm system to the KNX system
✓ Calling up scenes in a KNX system via the security alarm system

Technical data, KNX Interface Board

- KNX interface for connection to the external safety bus
- All connections on 2mm safety sockets
- Operating Power supply from the safety bus of the control centre

Technical data, Alarm Control Board

- 10 detector groups
- 2 relay outputs, programmable
- 1 relay output for continuous alarm
- 1 internal safety bus
- 1 external safety bus
- 1 transistor output for a strobe light
- 2 transistor outputs for sirens
- 8 transistor outputs for e.g. a dialler
- 1 input for an emergency power supply
- 1 input for telephone dialler Fault
- 1 input for telephone dialler Alarm
- 1 input for telephone dialler Sabotage
- VdS approval: Classes A, B, C in accordance with DIN VDE 0833 parts 1&3
Interface KNX to the intrusion alarm central panel

Outputs only

Bidirectional communication (Standard)

VdS-approved only in this mode

*A/N=activated/non-activated*
KNX INSTALLATION BUS SYSTEM

HARDWARE

Touch Panel

![Touch Panel Image]

LEARNING OBJECTIVES

- Control and visualisation of KNX systems
- Switching
- Switching/dimming with stop telegram
- Switching with forcible control
- Blind control
- Setting values, 1 byte
- Setting temperature value
- Setting value counter
- Calling/saving scenes
- Setting heater operating mode
- 1-bit status display
- 1-byte status display
- 2-bytes status display
- 4-bytes status display
- Screen saver
- Time and logic functions
- Presence simulation

41 227  KNX Colour Touch Panel

The Board contains the following components:

- KNX Color Touch panel 5,7”-colour TFT
- Mains and bus voltage connection
- 10 operating pages with 5 functions each
- Up to 60 additional functions can be implemented
- Up to 64 scenes can be stored
- 16 alarm/event objects available
Clear menu guidance on the Touch Panel

- Conference 1: Office 1
- Conference 2: Office 2
- Meeting 1: Reception
- Meeting 2: Kitchen
- Lobby: Hallway

Skip to selection of the configuration
Activate the silent mode
Skip to alarm screen
Start the Logo / slide show
Display of the date and time

Configuration

- General: General system settings
- Scenes: Configuration of the scenes
- Logic: Configuration of the logic
- Presence: Presence simulation
- Time schedules: Configuration of the schedules
- Graphs: Trending module

Temperature

- Physical unit of the status value
- Parameterised scaling for the y-axis
- Discrete indication of the min. and max. values
- Progression of the status value over the parameterised period
LEARNING OBJECTIVES

- Switching ON/OFF
- Dimming (relative and absolute) 0 % – 100 % of the adjustable range
- Set dimming value continuously / switch on directly
- Integration in the scene control
- Feedback of the initial state and the initial value via the bus in case of changes
- Commissioning and troubleshooting

41 012  KNX Project Dimming

Set of circuit components for the project Dimming, assembled on a grid panel, consisting of:

- Small-scale distributor
- RCD circuit breaker 40/0.03 A, 4-pole
- Line circuit breaker B10 A, 1-pole
- Universal dimming actuator, 2-X, 300 W
- Electronic ballast for halogen lamps with recessed 50 W luminaire, in a system casing
- 4-X push button sensor with bus coupler and base
- Halogen lamp 60 W, incl. bulb
- Set of KNX system cables with branching and connecting cables
- Set of wiring and distribution accessories
- Scene and logic module
- Binary input 2-X with 2-X push button
Dimming by means of universal dimming actuators

**Sinusoidal voltage**
- 230 V 50 Hz

**Phase angle control, leading edge**
- Voltage progression at the load

**Phase angle control, trailing edge**
- Voltage progression at the load

*Dimming by means of universal dimming actuators*

Connection of an incandescent lamp load to the universal dimming actuator
LEARNING OBJECTIVES

✓ Configuring KNX signalling systems
✓ Integrating sensors of alarm technology
✓ Putting telephone gateway into operation
✓ Evaluating and monitoring alarm signals
✓ Parameterisation of an LCD display
✓ Commissioning and troubleshooting

41 014  Project alarm function KNX

Set of circuit components for the project Dimming, assembled on a grid panel, consisting of:

- Analogue telephone gateway analogue with web server
  - Power supply 12 V DC
- Distribution
  - small-scale distributor
- Detectors and sensors
  - Reed contacts for door and window monitoring
  - Infrared motion detector
  - Glass breakage sensor
  - Alarm distributor with sabotage monitoring
  - KNX detector group terminal KNX 12 V DC with 2 detector group inputs for several passive detectors
  - KNX LCD display for displaying alarm states and for parameterising values
  - Set of KNX system cables with branching and connecting cables
  - Set of wiring accessories
PROJECT: ALARM FUNCTIONS
HARDWARE

KNX network coupler

LEARNING OBJECTIVES

- Using line/area couplers
- Parameterising line/area couplers
- Using filter tables
- Evaluating routing counter contents
- Commissioning and troubleshooting
- Line/area coupling via IP
- Programming via IP

41 020 KNX network coupler

Set of circuit components for the project Dimming, assembled on a grid panel, consisting of:

- KNX Power supply
- 2 line/area couplers
- 1 IP router
- Power supply 24 V DC
- Push button sensor with LCD display and timer function
- Distribution panels for lines A and B
- Free mounting space for additional sensor
COUPLING LINES VIA ETHERNET

Commissioning via LAN / W-LAN

**Procedure**

1. Connect the IP router to the KNX bus
2. Use the Ethernet cable to connect the W-LAN router to the IP router. You can now go into the individual rooms with a notebook and the ETS software.

**Advantages**

- Wireless KNX commissioning via W-LAN
- Freedom of movement in the building
- Commissioning possible by only one person

**Remote access over the Internet (DSL)**

**Procedure**

1. Connect the IP router to the KNX bus
2. Connect the IP router to the LAN
3. Configure the VPN-DSL router or the dial-in router

**Advantages**

- Parameters can be quickly changed via remote access
- Cost reduction through remote access (physical approach not required)
- Guarantee of data security

**Coupling lines over Ethernet (LAN)**

**Procedure**

1. Connect the IP router to each KNX line (instead of a line coupler)
2. Connect IP router via multicast-capable LAN
3. Commission each IP router with the ETS3 or ETS4 software as you would do with a "conventional" line/area coupler

**Advantages**

- LAN as main and sub-area line
- Data transfer over longer paths possible
- Use of existing data networks and components (LAN)
FROM INSTALLATION TECHNOLOGY...
...TO BUILDING COMMUNICATION
KNX INSTALLATION BUS SYSTEM

ELABO TrainingsSysteme

NETWORKED BUILDING CONTROL

INSTALLATION TECHNOLOGY

AUDIOVISUAL TELECOMMUNICATION SYSTEMS

HOME BUS

ISDN

KNX

LIGHTING TECHNOLOGY / DALI

ALARM SYSTEMS / FIRE ALARM SYSTEMS

SAFETY BUS / ACCESS CONTROL

INSTALLATION Switch Board I

Video Outdoor Station

Door Phone

Video Power Supply Board

Tablephone

LED Strip

LED Power Supply Board

Network analysis

Door Phone

Color Touch Panel

Project Blinds

Project Cover

Burglar Alarm Board

Detector Circuits Board

Access control

Technical Alarm Board

LAN Interface Board

Alarm Control Board

Room Controller

LED Effect Lighting Board

Expense LED Lamp Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controller

Alarm Control Board

Room Controlle
**Classical topology**

In the classical topology, all the line and area couplers are traditionally configured as KNX couplers.

This topology is proven and used extensively. The bus line lengths are mostly limited to one building.

**Modern topology**

In this modern topology, the area couplers are replaced by IP routers 1.

Owing to the use of standard network components, the connection of e.g. two parts of a building is not limited to bus line lengths.

Even other media like fibre optic cables or WLAN can be employed to couple to remote buildings and to exchange group address telegrams.

**Innovative topology**

In this innovative topology, all the line couplers are replaced by IP routers 2.

The use of area couplers is not necessary any more. This configuration allows connecting every individual floor via Ethernet (LAN) and using existing LAN networks.

Moreover, through the correct configuration of the IP router, large projects can be commissioned more clearly and easily in the form of smaller individual projects.

An exchange of group address telegrams is possible despite the division into individual projects.
Use of the KNX line / area couplers

Use of the KNX line / area couplers and the IP router

Use of the KNX line / area couplers and the IP router

Use of only the IP routers
Push button panel 3-X with LCD display and timer function
up to 40 weekly timer entries
8 switching functions possible

Connection KNX line
Ethernet connection for IP router
Power supply for IP router
IP router
Line / area coupler 2
Distribution panel 1
KNX Gateway

**FUNCTIONS**

- **Time functions:**
  - Timer mode
  - Night mode
  - Warning of impending OFF

- **Dimming:**
  - Brighter/darker
  - Brightness limitation
  - Adjustable dimming time

- **Switching:**
  - On/Off
  - On/Off via dimming

- **Emergency lighting:**
  - Control of self-contained luminaires
  - Support of obligatory test sequences

- **Status:**
  - short-circuit
  - power supply
  - Status outputs
  - Status groups
  - Status electronic ballast

**Technical data**

- Interface for integrating up to 64 devices
- Bus voltage: approx. 19 V DC
- KNX-bus connection
- Mains voltage: 110 – 240 V AC, 50/60 Hz
- Connection of all inputs and outputs via safety sockets (2 mm)
What is DALI?

Innovation in lighting technology

Digital Addressable Lighting Interface

DALI was jointly created by the leading manufacturers of control units and electronic control gears as a non-proprietary standard to satisfy all the demands that are placed on a modern light management.

Approved by almost all luminaire and control equipment manufacturers, DALI has become the new standard in lighting industry. DALI was designed mainly for room lighting control. Ease of use of the lighting systems and their components has always been in the focus. As an interface standard, DALI provides the means to configure complete light management systems for rooms such as DALI room controllers or KNX-DALI gateways.

Features

- **Simple installation**
  DALI and power supply wires can be handled in a single, common cable. Any wiring topology can be used, such as line, star or mixed.

- **Stable dimming function**
  Precise dimming values are achieved from digital signals which are insensitive to interferences.

- **Flexibility**
  The assignment of the luminaires to the light groups and the operating buttons are defined after the installation, thus offering easy planning even after start-up.

- **Polarity of wiring irrelevant**
  Wiring errors can almost be excluded.

Innovation in lighting technology

- **Benefit for installers**
  Changing the use of a room does not require rewiring as in 1…10 V systems. The complete lighting can be software-controlled over a single gateway.

- **DALI is bus-capable**
  Light switching and dimming is only one function of DALI. It can also be used to control colourful light scenes, fluorescent lamps or metal halide lamps. DALI furthermore allows complex programming for setting up constant light control circuits.
KNX weather station

LEARNING OBJECTIVES

- Recording and evaluation of weather data
- Temperature monitoring
- Evaluation of the brightness
  e.g. for constant light regulation
- Brightness-dependent lighting control
- Wind monitoring
  e.g. for controlling blinds
- Time recording via DCF 77
  and transmission to the bus
- Logical connection of signals
- Facade control of blinds or roller shutters
- Evaluation of rain alarms or precipitation

41 022 KNX weather station

- Power supply 12 V DC
- Rain simulation button
- Continuously variable wind simulation
- Weather station with
  - Rain sensor
  - Wind sensor
  - Temperature sensor
  - DCF 77 receiver
  - Light sensor
  - Facade control
  - Logic function/timer

![Diagram showing wind speed and awning control](image-url)
Evaluation of the different sensors

Precipitation sensor with wind limit value for fabric awning

- Value range: 0/1
- Address: 3/6/31
- Building no: 31
- Name: Precipitation alarm

Wind sensor
- Value range: 0 – 70 m/s
- Address: 3/6/7
- Building no: 7
- Name: Wind speed [m/s] 16 bit

Brightness sensor
- Value range: 0 – 99 Lux
- Address: 3/6/16
- Building no: 16
- Name: Brightness [Lux] 16 bit

Temperature sensor
- Value range: –40 – +80° C
- Address: 3/6/33
- Building no: 33
- Name: Outside temperature [°C/F] 16 bit

Definition of different limit values

- Brightness sensor
  - [kLux] 20
  - [Lux] 150
  - Object number: 20
  - Address: 3/6/20
  - Name: Sunshine

- Twilight sensor
  - Object number: 26
  - Address: 3/6/26
  - Name: Darkness
  - Brightness limit value 1 (awning)
  - Twilight limit value 1 (blind)
LEARNING OBJECTIVES

- Parameterising logic modules
- Fundamentals of digital technology
- Programming with the operating elements
- Programming with the PC

40 016  PLC Board 24 V

LOGO! 24RC:

- Integrated display panel with backlighting and operating panel with buttons
- Memory EPROM for switching program and internal set values
- 8 inputs (of which 4 are usable analogously): 0...10 V
- 4 relay outputs 10 A max. (– 10 A with resistive load − 3 A at inductive load)
- Short-circuit protection: via external fuse
- 8 integrated timers with summer/winter time switching
- Power reserve approx. 80 hours
- Modularly expandable
- Mounted on PLC Board 40 014
40 014  PLC Board 24 V

40 026  KNX Expansion Module

63 526  24 V DC Power Supply Board 2.5 A

E40 804  Industry user manual LOGO!

40 029  LOGO! USB interface cable

40 808  Software LOGO!Soft Comfort
        Training and programming software
Table model of a blind in a transport frame. Connection is achieved via a common blind or roll-down shutter actuator. The following functions are possible with the technology model 'Blind':

- Blind movement
- Slat adjustment
- Positioning
- Safety function

Technical data

- Operating voltage 230 V AC
- Connection to blind socket
- Connecting cable approx. 1 m
- Dimensions: 800 x 640 x 120 mm (B x H x T)
Weather-dependent blind control

Blind

KNX weather station

KNX Professional Programming Board

91 801 Experiment case for mobile use

KNX Colour Touch Panel
Project-oriented training

Manual contents

- Principles
- KNX Toolsoftware Version 4.x (ETS4.x)
- Tests for basic building functions

- Project 1: Breaker circuit, button switched line, dimming and blind function
- Project 2: Extension with a time function
- Project 3: Breaker circuits, dimming, blind control with central OFF, use of feedback objects
- Project 4: Control of building functions in a recreation centre; lighting control, blind control dimming, logical connectives and time function
- Project 5: Office building with safety function for the blind and logical connective OR

Practical experiments
Practical experiments for the trainee or the student equal to the trainer part, with tasks, but without solutions.
Transparency set

- Principles
- Applications
- KNX Toolsoftware
- Example solutions
- Components

KNX objectives

Tasks of KNX:
- Certification of products and training centres
- Assigning trade marks
- Assuring quality
- Securing compatibility (EIS)
- Uniform standard KNX

Software

E41 210  KNX database collection

TECHNOCard

E41 233  KNX Professional Programming Board
CONSULTANCY

- Design of customer oriented solutions
- Presentation, product demonstration and on-site consultation
- Assistance in the choice of products complying with syllabuses
- Customized products according to requirements
- Development of room concepts
- Design of ergonomic workplaces
- Turnkey projects

CONTACT

ELABO TrainingsSysteme GmbH
Service-Center
Im Hütental 11
85125 Kinding / Germany

Tel.: + 49 (0) 84 67 / 84 04 - 0
Fax: + 49 (0) 84 67 / 84 04 44

sales@elabo-ts.com

www.elabo-ts.com
EXPERIENCE

- Design and manufacturing of technical training systems
- Comprehensive range of innovative products, systems and solutions – MADE IN GERMANY
- Quality service from first consultation to delivery and beyond
- Trainer seminars onsite or inhouse
- References worldwide
  - Industrial training institutions
  - Vocational schools / technical schools
  - Chambers of crafts
  - Technical colleges
  - Universities / Universities of Applied Sciences

WE ASSIST YOU

- On-site installation and commissioning
- Technical support
- Warranty and maintenance
- Briefing and training
- Qualification, advanced training, workshops
- Comprehensive product documentation
- Detailed courseware for trainers and students
KNX INSTALLATION BUS SYSTEM
**YOUR INQUIRY**

---

**ELABO TrainingsSysteme**  
*Aus- und Weiterbildung GmbH*

Im Hüttenal 11  
85125 Kinding / Germany

Tel.: +49 (0) 84 67 / 84 04 - 0  
Fax: +49 (0) 84 67 / 84 04 44

We would like to be contacted:  
☐ by telephone  ☐ by e-mail  
☐ Please send us an offer:

---

<table>
<thead>
<tr>
<th>Ord.-No</th>
<th>Description / Title</th>
<th>Page</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>41 220</td>
<td>KNX Professional Programming Board</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>41 221</td>
<td>Application – residential house</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>41 222</td>
<td>Application – administration building</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>41 223</td>
<td>Application – recreation room</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>41 224</td>
<td>Application – office building with outdoor area</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>90 144</td>
<td>KNX-Programming environment ETS4 Lite</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>90 145</td>
<td>KNX-Programming environment ETS4 Professional</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>80 544</td>
<td>USB Programming Connection Line</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>41 002</td>
<td>KNX Professional Connection Line</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>45 000</td>
<td>Alarm Control Board</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>45 010</td>
<td>KNX Interface Board</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>41 227</td>
<td>KNX Colour Touch Panel</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>41 012</td>
<td>Project: Dimming</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>41 014</td>
<td>Project: Alarm function</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>41 020</td>
<td>KNX-Network Coupler</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>41 226</td>
<td>KNX Gateway</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>41 022</td>
<td>KNX Weather Station</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>40 016</td>
<td>PLC Board 24 V</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>40 026</td>
<td>KNX Expansion Module</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>63 526</td>
<td>24 V DC Power Supply Board</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>40 804</td>
<td>Industry user manual LOGO!</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>40 029</td>
<td>LOGO! USB interface cable</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>40 808</td>
<td>Training and programming software LOGO!Soft Comfort</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>41 115</td>
<td>Technology model: Blind</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>91 801</td>
<td>Experiment case</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>41 235CD</td>
<td>Manual, Trainer Part, KNX</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>41 236CD</td>
<td>Manual, Practical Experiments KNX</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>91 905</td>
<td>Set of media folders including register</td>
<td>42</td>
<td></td>
</tr>
<tr>
<td>41 237CD</td>
<td>Set of transparencies KNX</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>41 233</td>
<td>TECHNOCard KNX Professional Programming Board</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>41 210</td>
<td>KNX database collection</td>
<td>43</td>
<td></td>
</tr>
</tbody>
</table>
ELABO TrainingsSysteme GmbH
Im Hütentall 11
85125 Kinding / Germany

Tel.: +49 (0) 84 67 / 84 04 - 0
Fax: +49 (0) 84 67 / 84 04 44
E-mail: sales@elabo-ts.com
Internet: www.elabo-ts.com