

Appendix C Symbols

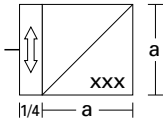
General information

The overall symbol consists of a square of side length “a” into which the individual symbols are entered. The transmission electronics are represented by a rectangle with dimensions a x a/4, which depending on the function of the device, is attached to one or two sides. The “bus arrow” is inserted into the a x a/4 rectangle representing the transmission electronics. Individual symbols are inserted into the square, side length a, to represent the function. These symbols are identical to those of the DIN 40 900 standard.

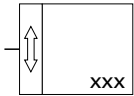
The direction of information flow can, if desired, be represented by arrows on the bus line.

The following symbols should be used for bus devices that cannot be represented by the specified symbols:

Sensor







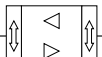


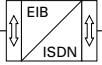
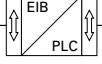








Actuator



xxx = alphanumeric term

Basic components and system components

Product name	Abbrev.	Symbol
Bus coupling unit	BCU	
Choke	CH	
Power supply	PSU	
Power supply with integrated choke Power supply unit	PSUTCH	
Line coupler	LC	
Area coupler	AC	
Repeater	RE	
Data interface RS 232 interface	RS232 (V 24)	
External interface Gateway	GAT	
E.g. to ISDN		
PLC interface		
Field bus interface		

Product name	Abbrev.	Symbol
DCF77 interface		
Application controller Application control Control element Scene element Logic element Linking element Time profile control		
Connector		
Band stop		
Phase coupler / repeater		

Sensors

n = number of inputs [1, 2, 3,...]

Product name	Abbrev.	Symbol
Sensor, general a) Field to identify the application software b) Field for physical input quantities to identify the input channels		
Sensor, general – With auxiliary supply		
Binary sensor Binary input Binary device Input terminal Pushbutton interface b) Field for physical input quantities to identify the input channels		
e.g. for DC		
e.g. for AC		
e.g. 2 inputs, AC		
Binary / analogue sensor Binary / analogue input Binary / analogue device		

Product name	Abbrev.	Symbol
Analogue sensor Analogue input Analogue device		
Touch sensor Pushbutton		
Dimming sensor Dimming push button		
Control touch sensor Control push button		
Blind sensor Blind push button		
IR transmitter		
IR receiver		
IR receiver with n-way pushbutton		
IR decoder		
IR receiver / decoder		
Brightness sensor		
Brightness detector Brightness value switch Twilight push button		

Product name	Abbrev.	Symbol
Temperature sensor		
Temperature detector Temperature value switch Room thermostat		
Movement sensor PIR = Passive Infrared US = Ultrasound		
Movement detector		
Clock Time sensor		
Timer Time value push button		
Wind speed sensor		
Switch lock		
Automatic cutout monitoring		

Actuators

n = number of outputs [1, 2, 3,...]

Product name	Abbrev.	Symbol
Actuator, general		
Actuator with auxiliary supply		
Actuator, general with time delay		
Switching actuator Switching device Binary output Binary device Output terminal		
Blind actuator Blind switch		
Dimming actuator Switching / dimming actuator		
Display panel Display unit Display terminal Info display, e.g. 8-way		
Analogue actuator Analogue output Analogue device Regulator Control unit		

Product name	Abbrev.	Symbol
Pulsed switch e.g. for electrical heating/heating valve *) Function: Switching output ON/OFF (0-100%); i.e. if 60% is entered as an analogue value, the output is at ON for 60% of the time and at OFF for 40% of the time. (Time units of approx. 64 seconds are used.)		
Valve Proportional valve positioner		
Binary display		

Combination devices

n = number of inputs/outputs [1, 2, 3,...]

Product name	Abbrev.	Symbol
Combination of sensor functions in one device E.g. Temperature sensor and time value switch		
Switching device E.g. binary input and binary output		
Switching device E.g. dimmer and binary input		
Bus coupling unit module with timer and light intensity switch (with brightness sensor)		
Switching actuator with n-way infrared receiver		
Switching actuator with n-way pushbutton		
Dimming actuator with n-way pushbutton		
Blind actuator with n-way pushbutton		

Appendix D *Regulations, standards and requirements*

DIN VDE 1000-10	Safety requirements for persons working in the field of electrical engineering
DIN VDE 0100	Erection of power installations with rated voltages below 1000 V
-200	– Definitions
-410	– Protective measures; protection against electric shock
-420	– Protective measures; protection against thermal effects
-430	– Protective measures; protection of cables and cords against overcurrent
-510	– Selection and erection of equipment; common rules
-520	– Selection and erection of equipment; wiring systems
-610	– Verification; initial verification
-725	– Auxiliary circuit
DIN EN 501 10-1	Operation of power installations
DIN VDE 0105	(operation of electrical installations)
-1	– General requirements
DIN VDE 0106	Protection against electric shock
-1	– Classification of electrical and electronic equipment
-100	– Actuating members positioned close to parts liable to shock
-101	– Basic requirements for protective separation in electrical equipment

DIN VDE 0110 -1	Insulation co-ordination for equipment within low-voltage systems – Fundamental requirements
DIN VDE 0160	Electronic equipment for use in electrical power installations and their assembly into electrical power installations
DIN VDE 0185 -1 V-100 E-102 E-103 V-110	Lightning protection system – General data with regard to installation – Protection of structures against lightning (tentative standard) – General principles; guide; planning, set-up, maintenance, testing – Protection against electromagnetic lightning pulses (LEMP) – Manual for testing lightning protection systems (tentative standard)
DIN VDE 0207	Insulating and sheathing compounds for cables and flexible cords
DIN VDE 0470-1 EN 60529 DIN EN 50102 VDE 0470-100	Degrees of protection provided by enclosures (IP code) Degrees of protection provided by enclosures for electrical equipment against external mechanical loads (IK code)
DIN VDE 0472-508	Dielectric test on cables, wires and flexible cords for power installations.
DIN VDE 0603 -1	Consumer units and meter panels, 400VAC – Consumer units and meter panels

DIN VDE 0604 -1	Ducts mounted on walls and ceilings for electrical installations – General requirements
DIN EN 50086-1 VDE 0605-1	Conduits and fittings for electrical installations
DIN VDE 0606 -1	Connecting material up to 600 V – Installation boxes for accommodation of equipment and/or connecting terminals
DIN EN 60999 DIN VDE 0609-1	Connection material; safety requirements for terminal screw points and screwless terminal points for electrical copper wire
DIN VDE 0641-11	Circuit breakers for overcurrent protection for household and similar applications
DIN EN 60099 DIN VDE 0675 -1 E-6	Guiding principles for overvoltage protective devices – Non-linear resistor-type lightning arresters for alternating voltage networks – Surge arresters for use in a.c. supply systems with rated voltages ranging from 100 V to 1000 V
DIN VDE 0800 -1 -2 -4	Telecommunications – Requirements and tests for the safety of facilities and apparatus – Earthing and equipotential bonding – Erection of telecommunication lines
DIN VDE 0815	Installation cables and lines for telecommunications and information processing systems

DIN EN 50090	Home and Building Electronic Systems (HBES)
-2-1	– System overview; System architecture
-2-2	– System overview; General technical requirements
DIN V VDE 0829	
-100	– Standardization structure; Definitions
-230	– System overview; General technical requirements for installation devices
-240	– Technical report – Guidelines for the specialised laying of cables with twisted pairs, class 1
-521	– Twisted pair class 1; Safety layer
-522	– Bus line with twisted pair class 1
DIN EN 50081 / VDE 0839-81	Electromagnetic compatibility (EMC); Generic emission standard
-1	– Residential, commercial and light industry
-2	– Industrial environment
DIN EN 50082 / VDE 0839-82	Electromagnetic compatibility (EMC); Generic noise immunity standard
-1	– Residential, commercial and light industry
-2	– Industrial environment
DIN VDE 0845	Protection of telecommunications systems against lightning, electrostatic discharges and overvoltages from electric power installations
-1	– Provisions against overvoltages
E-2	– Requirements and tests of overvoltage protection devices and telecommunication apparatus

DIN 18015	Electrical installations in residential buildings
-1	– Fundamentals of planning and design
-2	– Type and scale of minimum equipment
-3	– Layout of cabling and electrical equipment
DIN 19226	Automatic control engineering
-1	– Definitions, fundamentals
supplement 1	– Keyword index
DIN 19246	Measurement, logic and sequence control, closed-loop control; project handling; terminology
DIN 31051	Maintenance; terms and measures
DIN 32541	Operation of machines and comparable technical equipment; terms used for operator activities and functions
DIN V 32734	Digital automation for technical installations in buildings; General requirements for design, planning and execution (digital building services automation)
DIN 40719	Connection diagrams
-2	– Identification of electrical equipment
DIN 40900	Graphical symbols for wiring documents (symbols for contact units and switching devices)
DIN 43871	Small distribution boards for built-in devices up to 63A

DIN 43880	Built-in devices for electrical installation; Enclosure and mounting dimensions
DIN 49073	Apparatus sockets made of metal or insulating materials for the connection of installation equipment of up to 16A, 250V
-1	– Main dimensions
DIN EN 50022	Industrial low-voltage switchgear; Mounting rails, DIN rails, 35 mm width for snap-on mounting of devices
DIN EN 61082	Documents in electrical engineering
-1	– General rules
FTZ 731 TR1	Distributing pipes and other concealed conduits for telecommunication lines in buildings; Technical description
VBG 4	Rules for prevention of accidents, "Electrical Installations and Equipment"

Please note:**Draft standard (e.g. DIN E VDE)**

Recommendation for a standard. It is generally used as a basis to raise objections to, to vote on or to approve a standard.

Because the intended standard may differ from the existing draft, such drafts are used at one's own responsibility and must be specially arranged.

Tentative draft (e.g. DIN V VDE)

A tentative draft is the result of a standards session, which because of certain reservations concerning the content or DIN having taken up a position opposed to it, has not been issued as a standard. Tentative standards deal with subjects that are in need of being standardised. Linked to this is the expectation that tentative standards will at some point be converted into accepted standards after the necessary changes according to the usual procedures, or alternatively withdrawn.

International standard (e.g. DIN EN)

Standard that has been accepted by an international standardisation committee and is available to the public.



Appendix E Selection of relevant literature on the subject of electrical installations

Title	ISBN	Publishing house
<i>EIB</i> manual Project Engineering for <i>EIB</i> Installations, Basic principles		WFE, Frankfurt, Germany
<i>EIB</i> manual Project Engineering for <i>EIB</i> Installations, Applications		WFE, Frankfurt, Germany
Mathematical and Electrotechnical Fundamentals*	3-8023-1571-5	Vogel
Electrical Installation Technology*	3-8023-1525-1	Vogel
Household Appliances, Lighting and Air Conditioning Technology*	3-8023-1580-4	Vogel
Electrical Measurement and Closed-Loop Control*	3-8023-1463-8	Vogel
Digital Technology*	3-8023-1440-9	Vogel

Title	ISBN	Publishing house
Microprocessor Technology*	3-8023-1453-0	Vogel
Electrical Control and Drive Technology*	3-8023-1556-1	Vogel
Taking Measurements, Protective Measures DIN VDE 0100*	3-7905-0702-4	Pflaum
Electrical Installation in Practice*	3-7905-0519-6	Pflaum
<i>EIB</i> Building Systems Engineering*	3-7905-0712-1	Pflaum
Modern Electrical Installations*	3-7785-2410-0	Hüthig
Compliant Electrical Installations in Residential, Commercial and Industrial Buildings*	3-7785-2410-0	Hüthig
Building Systems Engineering in Residential and Functional Buildings with <i>EIB</i> *	3-7785-2391-0	Hüthig
Electrical Installations in Residential Buildings, VDE Regulations*	3-8007-2108-2	VDE

Title	ISBN	Publishing house
Safety Tests in Electrical Installations with Voltages below 1000 V*	3-8007-2027-2	VDE
Security in Telecommunications and Information Engineering*	3-8007-1716-6	VDE
The Electricians Selection* (with subscription)		VDE
The Electricians Trade, DIN Standards*	3-410-13548-0	Beuth
The ABC of Electrical Installations*	3-87200-309-7	Energie
The Low Energy Manual*	3-87200-685-1	Energie
The ABC of Electric Hot Water Supplies*	3-87200-684-3	Energie
Electrical Installation Handbook	3-8009-4138-4	Siemens

*) Currently only available in German and only valid in countries regulated by VDE. Similar English documentation is planned for English-speaking countries.

Appendix F *EIBA members and licensees*

as at March 1998

Members

ABB Elettrocondutture SpA, Milan/Italy
 ABB STOTZ-KONTAKT GmbH, Heidelberg/Germany
 Albert Ackermann GmbH & Co., KG,
 Gummersbach/Germany
 A. Ahlström Corporation, Strömfors/Finland
 Altenburger Electronic GmbH, Seelbach/Germany
 AMP Deutschland GmbH, Langen/Germany
 ASTRO Strobel GmbH & Co., Bergisch Gladbach/Germany

Gebr. Berker GmbH & Co., Schalksmühle/Germany
 OBO Bettermann OHG, Menden/Germany
 Bosch-Siemens Hausgeräte GmbH, Munich/Germany
 Buderus Heiztechnik GmbH, Lollar/Germany
 Busch-Jaeger Elektro GmbH, Lüdenscheid/Germany
 BTicino spa, Milan/Italy

Caradon Electrical Holdings Ltd. (ex Pillar), Leicester/
 United Kingdom
 CERBERUS-GUINARD S.A., BUC CEDEX/France
 CMC Carl Maier + Cie AG, Schaffhausen/Switzerland
 Crabtree Electrical Industries Ltd., Walsall/United Kingdom

DEHN + SÖHNE GMBH + CO. KG, Neumarkt/Germany
 DIEHL GmbH & Co. Controls Division, Nuremberg/Germany
 DIEM Electronics S.A., Geneva/Switzerland

Eberle Controls GmbH, Nuremberg/Germany
 Electrium (ex Hanson Plc), Willenhall/United Kingdom
 Eltako GmbH, Fellbach/Germany

ELVOX Costruzioni Elettriche Spa, Padova/Italy

Feller AG, Horgen/Switzerland
 FELTEN & GUILLEAUME AG, Cologne/Germany
 Framatome Connectors Deutschland GmbH,
 Erkrath/Germany

GEYER AG, Nuremberg/Germany
 GEWISS SPA, Bergamo/Italy
 GIRA Giersiepen GmbH & Co. KG, Radevormwald/Germany
 Grässlin GmbH & Co. KG, St. Georgen/Germany
 GRUNDIG E.M.V., Fürth/Germany

Hager GmbH / Hager Electro SA., Ensheim/Germany –
 Obernai/France
 Theodor HEIMEIER Metallwerk KG, Erwitte/Germany
 Paul Hochköpper GmbH & Co. KG, Lüdenscheid/Germany

INSTA ELEKTRO GmbH & Co. KG, Lüdenscheid/Germany

Albrecht Jung GmbH & Co. KG, Schalksmühle/Germany

Hermann Kleinhuis GmbH & Co. KG, Lüdenscheid/Germany
 Heinrich Kopp AG, Kahl am Main/Germany

LEGRAND SA, Limoges/France
 Levy Fils AG, Basle/Switzerland
 Lindner GmbH, Bamberg/Germany
 LK A.S., Ballerup/Denmark

MENNEKES Elektrotechnik GMBH & CO. KG,
 Lennestadt/Germany
 Gebr. Merten GmbH & Co. KG, Wiehl-Bomig/Germany

N.V. NIKO, Sint Niklaas/Belgium
 NIESSEN S.A., San Sebastian/Spain

Philips Licht GmbH, Cologne/Germany
 Phoenix GmbH & Co. KG, Blomberg/Germany
 POPP + Co. GmbH, Bad Berneck/Germany
 Power Controls B.V. (Vynckier), Gent/Belgium

Ritto-Werk Loh GmbH & Co. KG, Haiger/Germany
 RITZENTHALER S.A., Baldenheim/France
 Robert Bosch GmbH, Stuttgart/Germany
 Wilhelm Rutenbeck GmbH & Co., Schalksmühle/Germany

Scharnebecker Electronic Fertigung GmbH,
 Scharnebeck/Germany
 SCHUPA-ELEKTRO-GMBH + CO. KG,
 Schalksmühle/Germany
 Siedle & Söhne Telefon- und Telegrafengeräte Stiftung & Co.,
 Furtwangen/Germany
 Siemens AG, Munich/Germany
 Simon s.a., Barcelona/Spain
 Somfy S.A. / Somfy GmbH, Cluses/France –
 Rottenburg/Germany
 Stiebel Eltron GmbH & Co. KG, Holzminden/Germany
 Striebel & John KG Elektroverteilernetze,
 Sasbach-Obersasbach/Germany

TEGUI Electronica S.A., Pamplona/Spain
 TEHALIT GmbH, Heltersberg/Germany
 THEBEN-Werk Zeitautomatik GmbH, Haigerloch/Germany

Joh. Vaillant GmbH u. Co., Remscheid/Germany
 Gebr. Vedder GmbH, Schalksmühle/Germany
 Viessmann Werke GmbH & Co., Allendorf/Germany
 VIMAR S.R.L., Marostica (Vicenza)/Italy

Wago Kontakttechnik GmbH, Minden/Germany
 Wieland Electric GmbH, Bamberg/Germany
 Winkhaus GmbH, Münster/Germany
 Woertz AG, Muttentz/Switzerland

Zumtobel AG, Dornbirn/Austria

Licensees

Amann GmbH, Oberhaching/Germany
APT GmbH, Scharnebeck/Germany
Ardan Production and Industrial Controls Ltd., Holon/Israel
ATICON Home Automation GmbH, Braunschweig/Germany

BERG-Energiekontrollsysteme GmbH, Gröbenzell/Germany
BÜRK ZEITSYSTEME GmbH, VS-Schwenningen/Germany

Elero GmbH, Beuren/Germany
ELJO AB, Bastad/Sweden
ELKA-Elektronik GmbH, Lüdenscheid/Germany

Hüppe Form Sonnenschutzsysteme GmbH,
Oldenburg/Germany

Intertel, Nova Milanese/Italy
IPAS GmbH, Duisburg/Germany

Landis & Gyr Building Control Corp., Zug/Switzerland

Metec GmbH, Hamburg/Germany
Multronic AG, Dietlikon/Switzerland
Hugo Müller GmbH, Schwenningen/Germany

Elektroanlagen Dieter NAGEL, Kandel/Germany
Netcon GmbH Gebäudeautomation, Radolfzell/Germany

F.W. Oventrop KG, Olsberg/Germany

RCS Realtime Control Systems AG, Rotkreuz/Switzerland

Schaeper Automation GmbH, Hannover/Germany

Sika Systemtechnik GmbH, Kaufungen/Germany
Stengler Gesellschaft mbH, Gütersloh/Germany

TechnoTrend GmbH, Erfurt/Germany
Tridonic Bauelemente Gesellschaft mbH, Dornbirn/Austria

Appendix G Requirements for the EIB bus line

1	Regulation	The bus line must meet the conditions of IEC 189-2 or the equivalent national regulation, if not otherwise stipulated in the following list of requirements.
2	Conductor diameter 1)	Minimum: 0.8 mm, maximum: 1.0 mm
3	Conductor material	Copper, single and multi-wired
4	Line layout	
4.1	External covering	Casing is required
4.2	Wires	2 = One twisted pair 4 = Two twisted pairs Type 1: 2 twisted pairs, paired Type 2: 4 twisted wires, spiral quad All wires should have different colours
4.3	Electric shock	Minimum 5/m
4.4	Shielding	Necessary Shielding should cover the entire circumference Tracer: min. diameter 0.4 mm

5	Capacity conductor/conductor	Max. 100 nF/km (800 Hz, 20°C)
6	Crosstalk attenuation	1 kHz: greater than 80 dB 10 kHz: greater than 70 dB 100 kHz: greater than 60 dB
7	Tension	2-wire line: min. 50 N 4-wire line: min. 100 N
8	Insulating resistance	100 MOhm x km (20°C) or 0.011 MOhm x km (70°C)
9	Testing voltage wire/wire	800 V
10	Additional high-voltage test	Test according to DIN VDE 0472-508, test type A or HD 21.1 S2 and HD 21.2 S2 However: – Testing voltage: 2.5 kV 4 kV 50 Hz – Testing duration: 5 minutes 1 minute – Test set-up: All wires and shielding connected to the external surface of the covering; in a water bath
11	Quality control system of the manufacturer	At least DIN ISO 9002, corresponds to EN 29002, corresponds to ISO 9002

1) A bus connection terminal should be used; see chapter 2.5.1.2.4

Remarks:

The DIN V VDE 0829 standard specifies the value of the testing voltage for the additional high-voltage test at 2.5kV .

The following lines are recommended for the *EIB* application (see chapters 2.5.1.2.2 and 2.5.3):

YCYM 2x2x0.8 Testing voltage 4 kV	<i>EIB</i> specification, for laying arrangements see Table 2.5-2
J-Y(St)Y 2x2x0.8 Testing voltage 2.5 kV	<i>EIB</i> specification, for laying arrangements see Table 2.5-2
JH(St)H 2x2x0.8	Halogen-free line, lay with separation
A-2Y(L)2Y or A-2YF(L)2Y	Underground telecommunications cable, lay outside

Appendix H Load characteristics for EIB powerline

- | | |
|--|---|
| Characteristic K = 1
(devices with low
noise load) | <ul style="list-style-type: none"> – Conventional plugable power supplies – Conventional low-voltage halogen transformers – Filament lamps – Blind and awning drives – <i>EIB powerline</i> devices |
| Characteristic K = 10
(devices with mid-level noise load) | <ul style="list-style-type: none"> – Small electrical devices such as for example, fan heaters, irons and other household devices – Electric ovens – Refrigerators and freezers – Power tools and other small machines – Garden tools (e.g. lawnmower) – Vacuum cleaners – Fans and ventilators – HiFi and video equipment – Fax machines – Energy-saving lamps |
| Characteristic K = 50
(device with high noise load) | <ul style="list-style-type: none"> – Heating controls – Personal computers (PCs) – Monitors – Televisions – Copiers – Electronic transformers – Fluorescent lamps with electronic ballast – Air conditioning units – Solariums |

Characteristic	– Inverters
K = 1000	– Carrier frequency transmission
(critical consumers)	systems, such as for example,
	mains-based baby intercoms
	– UPS systems

This table only lists a small number of the appliances that could be used in practice. In all situations where critical consumers are included in the system, a field trial will provide information on the quality of transmission.

Index

The index contains all sub-chapter headings that are not included in the list of the contents.

A bsence of interaction, logical and physical	31
Acceptance and documentation of the power installation	91
Access lighting	28
Access to <i>EIB</i> installations via RS 232	157
Achieving isolated signal areas	108
Active conductor	66
Address allocation	71
Address allocation and design lists	70
Adjacency in flush-mounted combinations	79
Advice for electricians	174
Advice for operators	174
Advice on procedure	90; 163
Amplitude keying	129
Antenna socket	152
Application area	143
Application areas / basic rules (PL)	104
Application controller	8
Application module / terminal	13
Application program	13; 43
Application program with group address	161
Applications and functionality	30
Applications and functions in residential buildings	34
Area coupler	7; 90; 163
Automatic cutout	112
Auxiliary supply	51
Avoiding overvoltage as a consequence of loop forming	67
Awning control applications	36

Band stop	100; 108; 113
Basic requirements for <i>EIB powerline</i>	105
Bitmap	138
Blind control	19
Blind control applications	36
Blinds/shutters	19; 148
Building disciplines	24; 31
Building systems automation	26
Building systems engineering	5
Built-in and surface-mounted devices	43
Bus access	11
Bus connection terminal	15; 47
Bus coupling unit	13
Bus devices	42
Bus devices and installation material	42
Bus devices for flush mounting	43; 86
Bus line for <i>EIB-TP</i>	15
Bus lines for <i>EIB powerline</i>	112
Bus lines for <i>EIB-TP</i>	45
Calculation program	157
Carrier	129
Central OFF/UP	52
Characteristic method	105
Checking a defined phase coupling	109
Checking continuity, short circuit, polarity, prohibited connections and adherence to maximum line lengths	83
Checking the line network	82
Checklist	28
Checksum field	12
Choke	7
Commissioning (HomeAssistant)	155
Commissioning (PL)	124
Commissioning (TP)	89
Commissioning / testing, ETS 2 module	159

Common system manager	39
Communication services	132
Communication socket	23; 37; 149
Communication with other systems	23
Communications network	25
Configuration manager	135
Connecting the bus line, junctions	81
Content of the ETS 2	156
Context-sensitive on-line help	38; 135; 156
Control centre operation of the <i>EIB powerline</i> controller	118
Control field	12
Conversions, ETS 2 module	159
Correlative pattern comparison technology	99
Coupling module	23
Cursor keys	115
Data field	13
Data interface	23; 27
Data management module	134
Data rail	15; 48
Data rail connector	15; 48
Database system	158
Decentralised bus access	12
Design of the distribution panels	56
Device connection	110
Device connection socket	52
Device layout	114
Devices for flush mounting	43
DIN rail	15; 47
DIN rail mounted units	14; 43; 50; 54; 86
Dividing the bus devices between lines and areas	57
Dividing the <i>EIB powerline</i> devices among the lines	121
Division of the disciplines	31

Documentation	74; 91
Documentation of the bus installation	91
Drag & drop	158
Drawing program	157
Earth leakage circuit breaker	112
Earthing and potential equalisation	87
<i>EIB Installation Bus System</i>	1
<i>EIB power supply</i>	7; 16
<i>EIB power supply with integrated choke</i>	47
<i>EIB powerline</i>	95
<i>EIB powerline controller</i>	114
<i>EIB powerline devices</i>	111
<i>EIB powerline phase couplers/repeaters</i>	119
<i>EIB radio</i>	127
<i>EIB radio applications</i>	127
<i>EIB Tool Software (ETS)</i>	70; 89; 156
EIBA certification	15
EIBA members	251
EIBA trademark	44
<i>EIB-PL applications</i>	96
<i>EIB-RF product launch</i>	130
<i>EIB-TP applications</i>	19
Electrical installation	75
Electrical installation with <i>EIB powerline</i>	122
Electrical safety	15
EMC protection management	68
EMC protection management for structural systems	68
Equipment level	39
Equipment list	72
Equipment with built-in bus devices	54
Errors, how to handle errors	174
Establishing the customer requirements (PL)	102
Establishing the customer requirements in functional buildings	28

Establishing the customer requirements in residential buildings	33; 165
ETE	156
ETS 2 modules	158
ETS 2, the basics	156
European Installation Bus Association	1
Event-controlled information exchange	12
Example project for a residential building	165
Extending an existent <i>EIB powerline</i> system	126
Extending existent <i>EIB-TP</i> installations	92
Extensions via a communication socket	149
Fibre-optic line	24
Filter tables	162
Flag	154
Flush-mounted devices	51; 52
Flush-mounted switching actuators	52
Free field	128
Free wire pair	46
Frequency band	100
Frequency keying	130
Function groups	143
Function list	73
Function tests	91
Function tests, official acceptance and documentation, (PL)	124
Function tests, official acceptance and documentation, (TP)	91
Functional building	28
Functional diagram	55
Functional representations	55
Functional security	68
Gateway	27
General advice PL	120
General advice TP	51
General requirements PL	112

General requirements TP	44
Group address	12; 90
H alogen-free line	45
Hardware for the HomeAssistant	150
Header line	136
Heating / temperature	148
Heating and ventilation control	20
Help system	135
HomeAssistant	9; 23; 34; 39; 54; 131
HomeAssistant connection conditions	151
HomeAssistant database	134
HomeAssistant Tool Software (HTS)	134
Household appliance applications	37
Hyperlinks	138
I dentifying the bus devices	84
Identifying, installing and connecting the bus devices	84
Impedance	97
Import/export of products and projects	157
Indication system	135
Individual functions	143
Inductive disturbance	100
Infrared control systems	27
Installation	14
Installation (HomeAssistant)	155
Installation material for <i>EIB powerline</i>	112
Installation material for the bus installation	44
Installation of the <i>EIB powerline</i> band stop	122
Installation of the <i>EIB powerline</i> phase coupler/repeater	123
Installation operation of the <i>EIB powerline</i> controller	116
Installation socket	50
Installation sockets and distributors (PL)	120

Installation sockets and distributors (TP)	50
Installation wires and material	110
Installation zone	57
Interface between <i>EIB</i> transmission media	26
Interface for add-on modules	157
Interface to communications networks	25
Interface to the building systems automation	26
Interfaces to infrared (IR) control systems	27
Internet	135
Intersections and adjacencies in distribution panels	76
Intersections and adjacencies in installation sockets	78
Intersections and adjacency	76
Intersections and adjacency to other low-voltage networks	79
Intersections and adjacency to public telecommunications systems	79
Intersections and the adjacency of lines	76
Intersections with and adjacency to power installations	76
Introduction (general)	1
Introduction <i>EIB-PL</i>	95
Introduction <i>EIB-RF</i>	127
IR decoder	27
IR receiver	27
IR receiver/decoder	27
IR transmitter	27
Isolated signal area	108
J unction box	152
K eyword index	139
L anguage management	156
Laying in electrical installation channels and conduits, surface mounting, flush mounting	81
Laying the bus line	79

Layout of the bus devices	13
Level ratio	65
Light intensity switch	52
Lighting (application software)	19; 147
Lighting control	19; 35
Lighting control applications	35
Lightning arrester	61
Lightning arrester for primary protection	62
Lightning protection	61
Lightning protection potential equalisation	61
Lightning protection system	61
Lightning protection, the necessity of	61
Line	6; 32; 57
Line coupler	6; 7; 82; 90; 163
Line identification	81
Line length	82
Line length between bus devices	82
Line load centre	47
Line segment	7
Load characteristic	106
Load characteristics for <i>EIB powerline</i>	256
Load management	21
Loading the application programs with group addresses and parameters	89; 124; 161
Loading the filter tables	89; 162
Loading the physical address (ETS)	160
Loading the physical address (PL)	124
Loading the physical address (TP)	89
Logic diagram	55
Logo field	136
Loop forming	67
Loops	67
Main group	71
Mains coupling unit	111
Mains frequency	98

Mains impedance	99
Mains power supply	98
Maintenance	173
Maintenance contract	173
Measuring the insulating resistance	84
Media coupler	120
Menu structure	143
Message priority	138
Microcomputer control	23
Microsoft WINDOWS 95	134
Middle group	71
Mixed installation	120
Modes of operation, <i>EIB powerline</i> controller	115
Monitoring function	36
Monitoring function applications	36
Monitoring, displaying, reporting and operating	21
Mouse click	132
Multimedia PC	9
Multimedia services	132
Navigational element	139
Neutral conductor	66
Open network	97
Operating and display elements	137
Operating element	140
Operating logic	143
Operating system and base system	134
Organisation of the HomeAssistant screen	136
Other application areas	38; 149
Overcoupling	110
Overshooting into adjacent areas	100
Overview button	139
Overvoltage protection	62; 63; 111
Overvoltage protection (secondary protection) for the <i>EIB</i>	65

Overvoltage protection for the 230/400 V AC network (secondary protection)	63
P ager	26
Parameter	13
Parameter block	55
Partial commissioning	90
PELV low voltage	56
Performance spec	42
Personalisation	136
Phase coupling	109; 119
Phase keying	130
Physical address	12; 89; 160
Physical external interface	14
Pictograph	138
Planning (HomeAssistant)	147
Planning (PL)	102
Planning (TP)	28
Planning and installation guidelines (PL)	103
Planning steps for <i>EIB powerline</i> signal transmission	108
Planning when using a repeater	109
Power manager	136
Power supply with integrated choke	7; 47
Powerline	28
Powerline (PL)	2; 95
Powerline controller	114
Preparatory cabling	32; 39
Preparatory work in the distribution panels	82
Pre-planning (PL)	105
Primary protection	62
Printer control	156
Private button	138
Product database	74; 152
Product management, ETS 2 module	159
Product training	179
Product-specific CD-ROM	24; 37; 155

Programming key	122
Programming the line and area couplers	90; 163
Progress display	138
Prohibited connections	82
Project design (HomeAssistant)	150
Project design (PL)	111
Project design (TP)	42
Project design and commissioning of <i>EIB-RF</i>	130
Project design for the bus devices	51
Project design guidelines for protection against lightning and overvoltage	62
Project design of the <i>EIB powerline</i> devices	120
Project design with ETS 2	121
Project design, an example	165
Project design, ETS 2 module	158
Project management, ETS 2 module	159
Project-specific key	159
Push contact system	48
Q uestionnaire	34; 181
R adio interference	98
Radio technology, RF	127
Radio transmission	2; 127
Recommendations for installing surge arresters	66
Reference literature	250
Regulations, standards and requirements	247
Remote control	37; 135
Remote monitoring	21
Remote polling	37
Re-parameterisation	131
Repeater	7
Repeater for <i>EIB-PL</i>	107; 119
Repeater for <i>EIB-RF</i>	129
Requirements for <i>EIB</i> bus line	254
Residential buildings	33
Return button	139

Room and building usage	29
RS 232 interface	134
Scenario	143
Scenario manager	142; 147
Scenes	147
Scroll bar	114
Second wire pair, type of usage	47
Secondary protection	63
Securing the free wires and the shielding tracer	80
Security / monitoring function	148
Selecting and placing the bus devices	51
SELV low voltage	15; 56
Sensors	20
Sensors and actuators with battery supply	127
Serial data interface	23
Series filter	113
Settings, ETS 2 module	158
SFSK, Spread Frequency Shift Keying	99
Shutter control	19
Shutter control applications	36
Sill cavities and floor channels	33
Simulation of occupancy	19; 31
Simulation program	157
Single actuator groups	153
Single room temperature control	20; 35
Single room temperature control applications	35
Software for designing a project	74
Software tool	156
Software user manual	74
Source address	12
Specifications	28; 103
Standard operating system	132
Star codes	39
Star formation	122
Status communication object groups	153
Status line	136

Stripping the bus line	80
Structure of the HomeAssistant	133
Sub group	71
Surface-mounted units and equipment with in-built bus devices	87
Surge arresters	62
Surge voltage	67
Symbols	243
System and supply reliability	16
System area	143
System code	129
System description	5
System events	135
System function column	137
System ID	125
System manager	32; 39
System settings	115
System shutdown	136
System start-up	136
System training	179
System upkeep	173
Systematic troubleshooting	175
Target address	12
Tasks of building systems engineering	5
Team-oriented project design	158
Technical connection requirements	102
Telecommunication	37; 135
Telecommunication applications	37
Telegram layout and addressing	12
Telegram load (PL)	100; 110
Telegrams	7; 12; 13; 17
Television functions	148
Terms and definitions	197
Test log	87

The 230/400 V supply network as the transmission medium	96
Time and date display	137
Time/logic module	136
Timer	52
Topology (PL)	100; 122
Topology (TP)	6
Total load characteristic	106
Touchscreen	132
Tracer	15; 80
Training	179
Transmission duration	110
Transmission rate	11; 100; 110
Transmission speed	11
Transmission technology (PL)	99
Transmission technology (RF)	129
Transmission technology (TP)	11
Transmission via bus lines	5
Transmission via radio	127
Transmission via the 230/400 V power supply	95
Transmitter and receiver parts	130
Transmitting level	98
Troubleshooting and diagnosis in an <i>EIB powerline</i> system	125
TV connection	152
Twisted pair	2; 5; 28
U nderground telecommunications cable	46
Upwards compatibility	92
Usage change	29
User interface software	136
Using a HomeAssistant	54
V ideo connection	26
Visualisation	18; 134
Visualisation program	22

W estern connector	23
Wiring arrangement (PL)	110; 121
Wiring arrangement (TP)	57
Working area (HomeAssistant)	140
Writing the specifications	103
Writing the specifications based on a given example	166