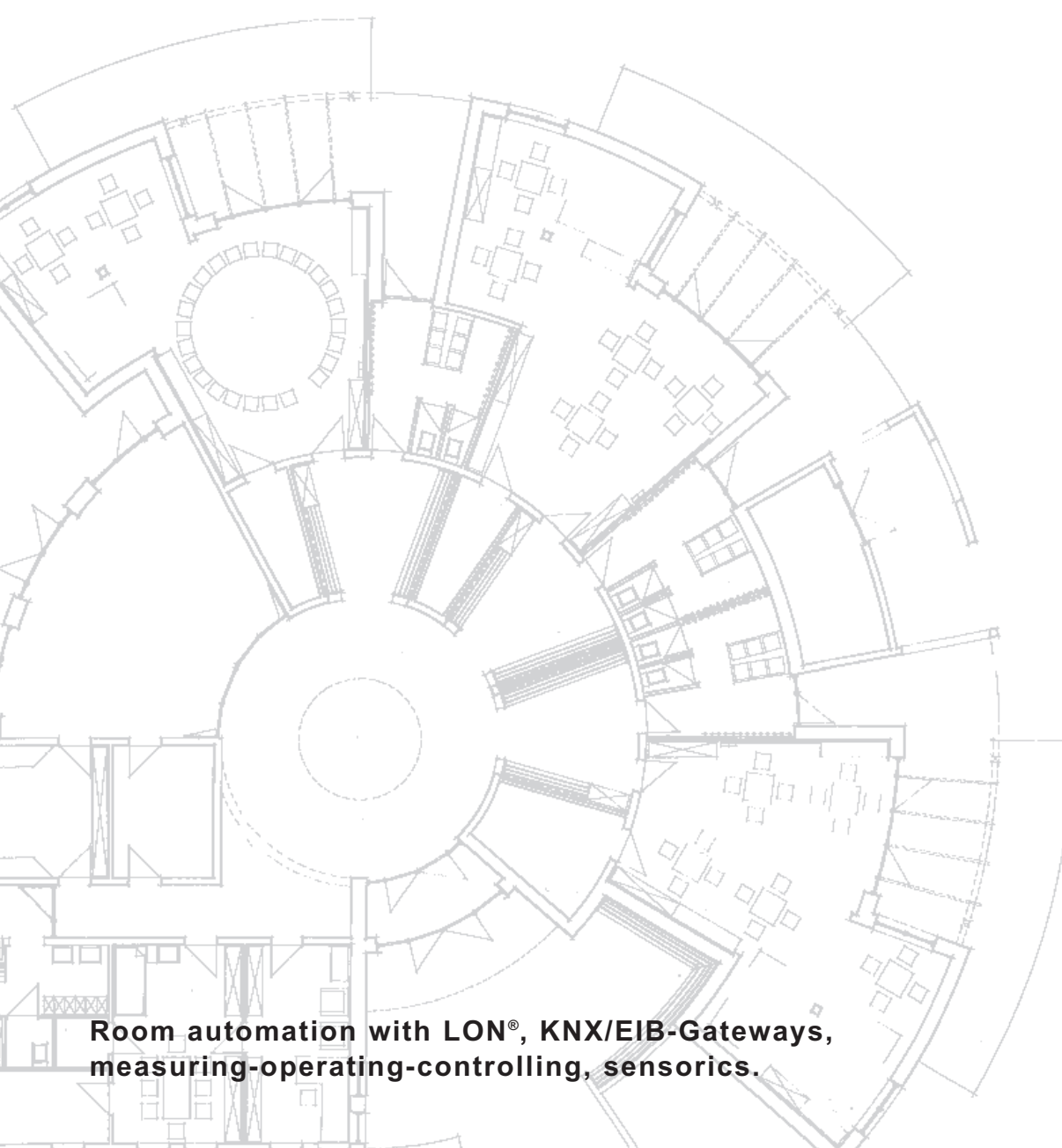




**Room automation with LON®, KNX/EIB-Gateways,
measuring-operating-controlling, sensorics.**

ELKA-Elektronik

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ELKA-Elektronik GmbH

These days the planning of modern buildings is more than ever depending on economic and ecological aspects. Building automation plays an important role in the effective use of energy.

With its focus on building automation the medium-sized company ELKA-Elektronik GmbH, founded in 1981, is a leading manufacturer of components for the bus systems LON and KNX/EIB as well as in the fields of sensorics and handheld devices.

In addition to single components, with its room automation system **e2i** (easy to integrate) ELKA offers a multifunctional range of products based on LON or KNX/EIB for easy integration of modern bus technology in architecture.

For our customers we realize important and demanding projects with our knowledge and experience. In the business fields measuring – operating – controlling, climate technology, building engineering, single room control and light management we continuously develop innovative standard products and OEM-solutions. The ELKA employees convert our customer's objectives into high-quality products and manufacture them.

Beyond our know-how, our strength is particularly the flexibility of a medium-sized company which can fast react to trends of the market and the wishes of our customers.

Belonging to a powerful group

As a 100 % subsidiary company of Insta Elektro GmbH ELKA belongs to the company group of Berker, Gira and Jung.

From the opportunity of having access to the experience and the production- and development centers of a large company group with approximately 2500 employees, numerous synergies arise. Joint know-how in the field of building automation.

By co-operation within the company group, innovative technologies are blended with a high demand on technical quality and aesthetic in order to create high-quality products.

Strong together

ELKA is member in important industrial and technological associations. The members are working together to bring forward new technologies and open up new markets. In regular meetings with other strong partners views and ideas are exchanged on current subjects, trends regarding standards, new technologies or changed technological marginal conditions.

Participating in international representations of interests brings new contacts to customers or partners in other countries. This opens up new chances for the ever more important ex-port business.





ELKA-Elektronik in Lüdenscheid, a leading manufacturer of components for the bus systems LON and KNX/EIB; belonging to the company group of Berker, Gira, Jung.

We will be pleased to assist you. Simply call us by phone or visit us – in Lüdenscheid or in the internet under www.elka.de.

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BlueHeaven
Frankfurt



BMW Hochhaus "Vierzylinder"
München



Deka "Signaris"
Frankfurt

These days modern buildings are not imaginable without an open building automation solution. Here architecture and technology have to be co-ordinated early in order to guarantee the maximum utility during the complete life cycle of real estate.

ELKA supports planners and architects with reliable system solutions on LON-basis as well as with experience in technology and planning regarding the economic operation of real estate.

Auto Uni Wolfsburg

Wolfsburg
floor space (BGF): 25.000 m²
scope of supply: Room operation
(HVAC, light, sunblind)

BlueHeaven

Frankfurt
floor space (BGF): 26.280 m²
scope of supply: Room operation
(HVAC, light, sunblind)

BMW Hochhaus "Vierzylinder"

reconstruction
München
floor space (BGF): 79.000 m²
scope of supply: Room operation
(HVAC, light, sunblind)

B852

Frankfurt, Höchst
floor space (BGF): 6.782 m²
scope of supply: Room operation
(HVAC)

Central Park Sossenheim

Frankfurt
floor space (BGF): 40.000 m²
scope of supply: Room operation
(HVAC, light, sunblind)

Cloppenburg Straße

Oldenburg
scope of supply: I/O-components for
sunblind, DALI-controller

Deka "Signaris"

Frankfurt
floor space (BGF): 15.830 m²
scope of supply: Room operation
(HVAC, light, sunblind)

Drehscheibe Frankfurt

Frankfurt
floor space (BGF): 19.200 m²
scope of supply: Room operation
(HVAC, light, sunblind)

KfW

Frankfurt
floor space (BGF): 26.000 m²
scope of supply: Room operation
(HVAC, light, sunblind)

E.ON

München
scope of supply: Room operation
(HVAC, light, sunblind); motor driven
valve actuators, Infrastructure components

Eschborn Plaza

Eschborn
floor space (BGF): 48.000 m²
scope of supply: Room operation
(HVAC, light, sunblind)

EuroHypo

Eschborn
floor space (BGF): 36.000 m²
scope of supply: Room operation
(HVAC, light, sunblind)



Fachhochschule Osnabrück
Osnabrück



Lufthansa Aviation Center
Frankfurt



Mercedes-Benz Museum
Stuttgart

Fachhochschule Osnabrück
Osnabrück
scope of supply: Room operation
(HVAC, light, sunblind); Occupancy
sensor

Landtag Düsseldorf
reconstruction
Düsseldorf
scope of supply: Room operation
(HVAC, light, sunblind)

Sparkasse Herne
Herne
scope of supply: Room operation
(HVAC, light, sunblind)

Feldmühleplatz Düsseldorf
floor space (BGF): 40.500 m²
scope of supply: Room operation
(HVAC, light, sunblind)

Lufthansa Aviation Center
Frankfurt
floor space (BGF): 60.000 m²
scope of supply: Room operation
(HVAC, light, sunblind)

Sparkasse Ingolstadt
Ingolstadt
floor space: 2.000 m²
scope of supply: Room operation
(HVAC, light, sunblind);
I/Os for light and sunblind; DALI-
controller; Infrastructure components

Festo
Esslingen
floor space (BGF): 33.900 m²
LON-nodes: 2.000
scope of supply: Room operation
(HVAC, light, sunblind); Occupancy
sensor

Mainova
Mainova AG
administration building HV/IT
Frankfurt
floor space (BGF): 43.000 m²
scope of supply: Room operation
(HVAC, light, sunblind)

Sparkasse Pirmasens
Customer hall and consultant offices
Pirmasens
floor space (BGF): 1.000 m²
scope of supply: Room operation
(HVAC, light, sunblind);
Infrastructure components; sensorics

Garden Tower
Frankfurt
floor space (BGF): 42.000 m²
scope of supply: Room operation
(HVAC, light, sunblind)

Mercedes-Benz Museum
Stuttgart
floor space (BGF): 32.000 m²
scope of supply: I/Os for light and
sunblind

Unfallkasse Hessen
Frankfurt
floor space (BGF): 13.898 m²
scope of supply: Room operation
(HVAC, light, sunblind)

Geschäftshaus Neuer Wall
Hamburg
scope of supply: Room operation
(HVAC, light, sunblind)

Münster Arkaden
Sparkasse Münsterland Ost
Münster
floor space (BGF): 7.600 m²
scope of supply: Room operation
(HVAC, light, sunblind)

Insta
Lüdenscheid
floor space (BGF): 8.922 m²
scope of supply: Room operation
(HVAC, light, sunblind);
I/Os for light and sunblind; Occupancy
sensor; Infrastructure components

Skyper
Frankfurt
floor space (BGF): 40.000 m²
scope of supply: Room operation
(HVAC, light, sunblind); Occupancy
sensor



LON is an open and interoperable technology by which all systems in one building can be connected. Numerous components are available to solve small and large automation tasks fast and economically.



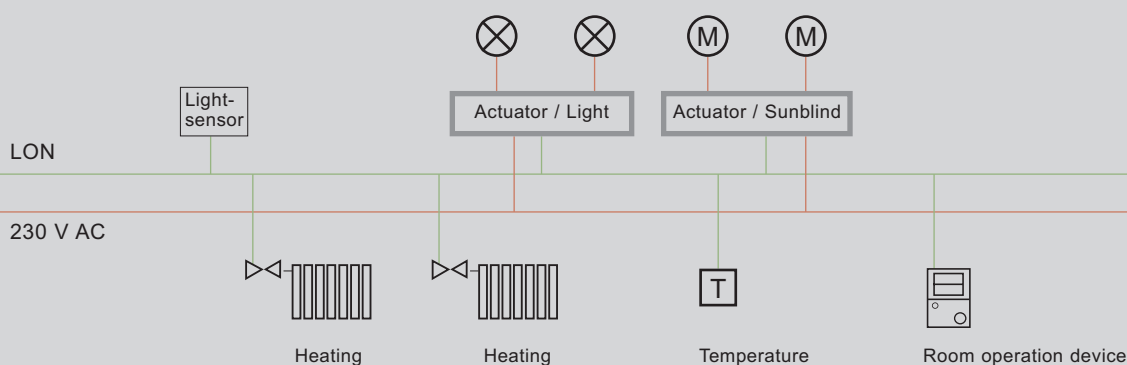
LON

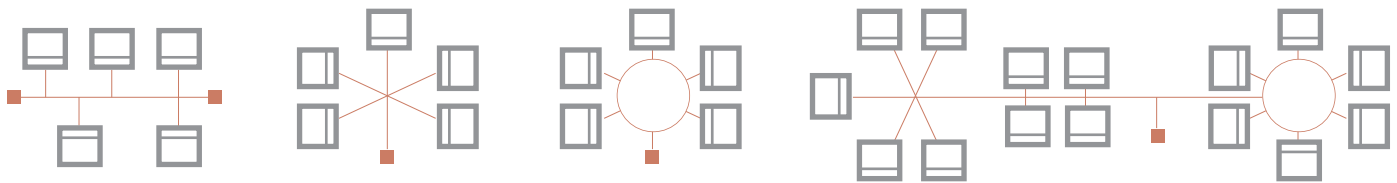
LON (Local Operating Network) is an universally employable and decentral network for automation in buildings, in industry, in traffic, in telecommunications and in many other fields.

Intelligent sensors, actuators and operation devices can flexibly be connected with each other. As transmission medium serves twisted pair, 230 V-power line or radio frequency. They communicate with each other from any point to any point. Changes, extensions and maintenance are possible at any time and also during operation.

Due to powerful tools and numerous components and products both small and complex automation tasks cannot only be solved fast, but also economically.

As member of the LONMARK Germany we support LON as open and interoperable technology by which all systems in one building can be connected. This is the basis for a room automation with a guaranteed future and thus for the economic operation of real estate.





Bus topologies: Line (bus), star, ring, free topology

LON – A short introduction

LON offers optimal possibilities to create a structured automation network for a building, as products and solutions on LON-basis are available for nearly every application within buildings. Thus, building automation can be realised with only **one** bus system and cost- and maintenance-intensive gateways need not be used.

Transmission media

As transmission media serve twisted pair, 230 V power line or fibre optic cable, but also the Ethernet. Therefore, LON-based automation solutions can very easily be integrated in company internal intranet- or world-wide internet solutions.

Structure

For structuring, so-called routers are available which on the one side filter information and on the other side serve to adapt different physical transmission media to two LON-channels. A LON-network can then be divided into several sub-nets (lines) and data traffic as well as cabling can be structured.

Topologies

The following topologies are allowed:

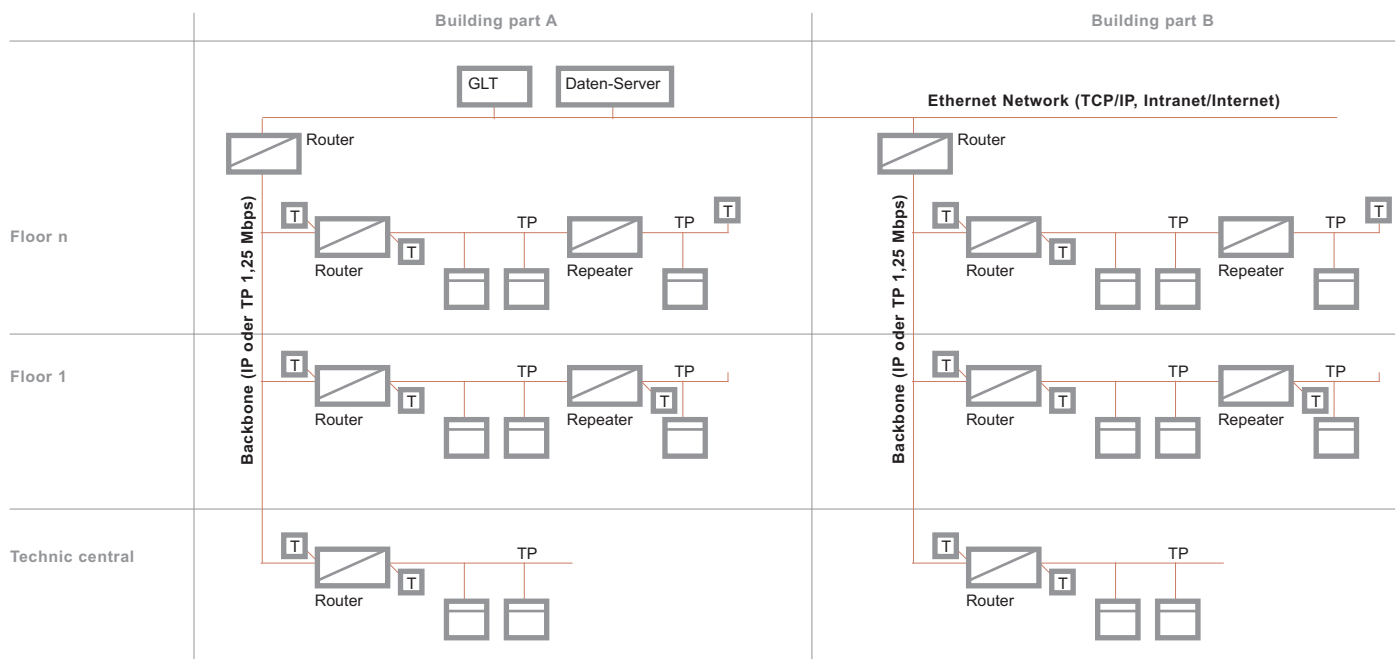
- line
- star
- tree
- ring

The ring topology must especially be emphasised. It allows constructing particularly save data transmission, because an interruption at one point does not override the communication in general.

Participants

A LON-network consists of up to 32.385 bus components (nodes) which communicate with each other by means of a standardised protocol (EIA 709 / EIA 852 / EN 14908). Each LON-node ex works disposes of a one-to-one, 48-bit wide physical address by which it can directly be addressed.

Transceiver	Medium	Transmission	Topology	Nodes	Net dimension
FTT	Twisted Pair	78 kbit/s	Free Line	64 64	500 m 2.700 m
LPT	Twisted Pair	78 kbit/s	Free Line	127 127	500 m 2.220 m
TPT/XF-78	Twisted Pair	78 kbit/s	Line	64	1.400 m
TPT/XF-1250	Twisted Pair	1,2 Mbit/s	Line	64	130 m



Transmission speed

Based upon a twisted-pair cable, data transmission speeds of up to 1,25 Mbit/s can be achieved. Employing an Ethernet-connection as quick backbone, transmission speed can be multiplied several times.

Safety

Opposite to other bus systems common in Europe, an end-to-end control which is implemented in the protocol guarantees a save data-transmission. For safety-relevant applications, an authentic data transmission is as well possible as a prioritised transmission of urgent information.

System integration

Planning and integration of a LON-system is realised by means of standardised, open tools whereas the tools' surface can be adjusted to the corresponding user group. The most important characteristic of these tools is using a uniform LNS-database and supporting LNS-PlugIns. These PlugIns are the reproduction of device-specific parameters and allow a

comfortable adjustment to the corresponding project. The result of system integration is saved within the LNS-database. It is the basis for that the data can be kept up with a different tool, independent from the fact with which open tool the system integration was realised.

Moreover, due to its client-server-architecture the database also enables that several employees can work on one project at the same time. Therefore, e.g. different installations can work at the same time or different floors can simultaneously be commissioned.

Standardised data types (standard network variable types – SNVT) and functional profiles defined by the LON guarantee a high degree of interoperability.

Number of LON-nodes

Domains per network	2 ⁴⁸
Nodes per domain	32.853
Subnets (lines per network)	255
Nodes per line	127

LP1500 RL

Art.-No. 130 01 020

**Link-Power Supply LP1500 RL**

Provides the supply voltage for LON-components with LPT-transceivers.

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- Output current: 1,5 A
- Short-circuit proof / overload protection
- Switchable terminating resistor for free or lines topology
- Protection type: IP 20
- Assembly width: 12 TE (approx. 215 mm)

LP/RT 1500 RLF

Art.-No. 130 01 021

FTT

**Link-Power Supply with Router****LP/RT 1500 RLF**

Provides the supply voltage for LON-components with LPT-transceivers. Integrated router for physical isolation and logical connection of two segments in TP/FT-networks.

Technical Data

- 2 TP/FT-10 transceivers
- Operation mode: Repeater, configurable and self-learning router
- Other characteristics: see LP1500 RL

LT-13
LT-33

Art.-No. see below

TP / XF 1250 / FT-10

**Terminator**

LON Terminator with 2 network terminators to terminate one channel of a TP/XF-1250 segment (bus topology) and one channel of a TP/FT-10 segment (bus topology / free topology) or to terminate two TP/FT-10 segments in bus- or free topology.

Technical Data

- Protection type: IP 20
- Assembly width: 1 TE / approx. 17 mm
- Mounting: DIN-rail DIN EN 50022

Available types	Type	Configuration	Article number
Terminator TP/XF1250 - TP/FT-10	LT-13	TP/XF: Bus topology TP/FT: Bus- or free topology (also LPT-channels)	130 01 080
Terminator 2 x TP/FT-10	LT-33	TP/FT: Bus- or free topology (also LPT-channels)	130 01 081

LS-...C

Art.-No. see below

TP/XF 1250 / TP/FT-10

**Router type "L-Switch™"**

For physical separation and logical connection of TP/FT-10 segments in LON-networks. Supports the operation mode configured router and plug and play by intelligent learning of the routers on subnet/node- and group level. Can also be used as active repeater. Integrated network diagnostic functions. LED show the network activity, network overload and network error conditions. Detailed channel statistics (channel load, CRC-error, forwarding statistics etc.) can be called-up from the network by means of the LSD-tool. Supports firmware updates and the configuration via each network interface. With service button, status display and integrated operating temperature- and voltage monitoring.

Technical Data

- Supply voltage: 12...24 V AC;
12...35 V DC
- Power consumption: 3 W (max. 7 W)
- Protection type: IP 20
- Assembly width: 2-Port 6 TE / approx. 105 mm
Multiport 9 TE / approx. 157 mm
- Mounting: DIN-rail DIN EN 50022

Available types	Type	Configuration	Article number
2-Port-Router 2 x TP/FT	LS-33CB	Port 1 + 2: TP/FT-10	130 01 030
2-Port-Router TP/XF1250 - TP/XT	LS-13CB	Port 1: TP/XF 1250 Port 2: TP/FT-10	130 01 031
3-Port Router 3 x TP/FT	LS-33300C	Port 1 - 3: TP/FT-10	130 01 032
3-Port Router TP/XF1250 - 2 x TP/FT	LS-13300C	Port 1: TP/XF 1250 Port 2 + 3: TP/FT-10	130 01 033
5-Port Router TP/XF1250 - 4 x TP/FT	LS-13333C	Port 1: TP/XF 1250 Port 2 - 5: TP/FT-10	130 01 034

LP-13333CT

Art.-No. 130 01 035

TP/XF 1250 / FT-10

**Gateway Type L-Proxy**

For physical separation and logical connection of 1 TP/XF-1250 segment and 4 TP/FT-10 segments in LON-networks. It is possible to exchange data across domain boundaries. All ports can be configured within different domains (and thus within different LNS-databases). Integrated gateway function on the level of network variables. Proxy functionality is achieved by means of transparent illustration of input network variables of one line onto output network variables of the other line. The input and output network variables for one line can be chosen freely. They can dynamically be configured with LON-standard tools (LNS). Converting functionality of scalar standard network variable types. The device supports firmware updates and the configuration by means of each network interface. With service button, status display and integrated operating temperature- and voltage monitoring.

Technical Data

- Port 1: TP/XF 1250
- Port 2-5: TP/FT-10
- Per Port:
 - Number of domains: 1
 - Network variables: max. 384
 - Alias entries: max. 512
 - Address table entries: max. 384
 - Supply voltage: 12...24 V AC;
12...35 V DC
- Power consumption: 3 W (max. 7 W)
- Protection type: IP 20
- Assembly width: 9 TE / ca. 157 mm
- Mounting: DIN-rail DIN EN 50022

LIP-...

Art.-No. see below

IP / TP/XF 1250 / TP/FT-10

**IP-Router**

LON-IP-Router with integrated EIA-852 configuration server for transparent connection of FP/FT 10-segments to the IP-network. The LON-IP-Router can be used as:

1. Router between Ethernet and LON-networks for communication between several LON-networks via Intra-/Internet (TCP/IP)
2. Interface between IP- and LON-networks for the access of PC-applications on the LON-network via Intra-/Internet (TCP/IP) and for visualization, control and configuration of LON-networks via Ethernet (TCP/IP).

The device can be used as configurable router, self-learning switch (Plug and Play) or as repeater. Supports Auto-NAT in case of varying public IP-addresses and DHCP. IP-packets can additionally be authenticated with MD5-check sum and time stamp.

The configuration and servicing can either be carried out via a RS-232 interface (9-pole) or via the integrated web server. A firmware update can be realized via a serial interface, the Ethernet or the TP/FT-10 network.

The product disposes of integrated LED for network diagnostics to show the status of the TP/FT-10 network, the Ethernet connection and the IP-852 channel. For remote maintenance via Intranet/Internet/VPN the LON IP-Router supports the remote LPA function. The LON IP-Router disposes of a real time clock with SNTP and integrated operating temperature- and voltage monitoring.

Technical Data

- Supply voltage: 12...24 V AC;
12...35 V DC
- Power consumption: 3 W (max. 7 W)
- Connection Ethernet: RJ-45 plug
- Protection type: IP 20
- Assembly width: 6 TE / approx. 105 mm
- Mounting: DIN-rail DIN EN 50022

Available types	Type	Configuration	Article number
1-Port-Router Ethernet / TP/FT	LIP-3ECTB	Port 1: Ethernet	130 01 036
	LIP-3ECTB	Port 2: TP/FT-10	
2-Port-Router Ethernet / 2 x TP/FT	LIP-33ECTB	Port 1: Ethernet	130 01 037
		Port 2: 2 x FT-10	
1-Port-Router Ethernet / TP/XF 1250	LIP-1ECTB	Port 1: Ethernet	130 01 038
		Port 2: TP/XF 1250	

LIP-ECRB

Art.-No. 130 01 039

IP / TP/FT-10

new

**IP-Router redundant**

Perfect solution for networks where high communication reliability is required. It is a member of the LIP-family, based on the standard LIP routers and provide additional functionality, which allows building a redundant network infrastructure. This router can be used as a single device to achieve redundancy on the ANSI/EIA709 (TP/FT10) channel by building a ring structure. If IT-network redundancy is available, full redundancy on the IP-channel and on the ANSI/EIA-852-channel can be achieved with two devices installed in parallel. In this case device redundancy is ensured as well by mutual monitoring of paired LIP-ECRB. In addition the LIP-ECRB (EIA709/IP-Router) monitors the nodes connected to the TP/FT-10-channel and creates an alarm if a node fails. An integrated broken cable detection algorithm helps to locate the point of failure immediately. The LIP-router LIP-ECRB routes ANSI/EIA-709-packets back and forth through an arbitrary IP-based network, such as a LAN, an Intranet, or even the internet. The LIP-ECRB only supports the configured router mode.

Available: June 2006

Technical Data

- Supply voltage: 12...24 V AC;
12...35 V DC
- Power consumption: 3 W (max. 7 W)
- Connection Ethernet: RJ-45 Stecker
- Protection type: IP 20
- Assembly width: 6 TE / approx. 105 mm
- Mounting: DIN-rail DIN EN 50022

LOPC-3ECTB

Art.-No. 130 01 051

TP/XF 1250 / FT-10

new

**OPC-Server**

The L-OPC gives users the ability to gain access to up to 1000 network data points over the Internet using well-known technologies such as Web pages and Web services. Supports XML/DA standard. With JavaScript or Java-Applets the L-OPC can also display active content on its Web pages. In addition the L-OPC combines the OPC server with a fully functional ANSI/EIA-709/IP router. This ensures at the same time direct access to the LON-Network through an EIA-852-IP-channel for network management tools for setting up the local network. The L-OPC makes network statistics data available as OPC-data points. The L-OPC supports bindings as well as polling between the connected nodes. Bindings can be automatically generated by the configuration tool and result in less traffic overhead on the TP/FT-10 channel. This event-driven method results in shorter reaction times compared to the polling method.

Available: June 2006

Technical Data

- Supply voltage: 12...24 V AC;
12...35 V DC
- Power consumption: 3 W (max. 7 W)
- Connection Ethernet: RJ-45 Stecker
- Protection type: IP 20
- Assembly width: 6 TE / ca. 105 mm
- Mounting: DIN-rail DIN EN 50022

NIC709-PCI

Art.-No. 130 01 090

TP/XF 1250 / TP/FT-10

**PCI-Network Interface**

PC-interface (32-Bit PCI, half length) as interface between PC and LON-networks with 3 integrated transceivers TP/FT-10, TP/XF1250 and RS-485. Supports the LNS/VNI functionality to operate LNS-compatible tools as well as the access to the network of LON-Manager-API based software (MIP) and of applications based on the ORION API.

It is possible to operate up to 8 applications (LNS/VNI, MIP or ORION API) on the same network interface at the same time. The device supports the use of protocol analysis- and system diagnostics software.

Technical Data

- Software (Windows): 98, ME, NT, 2000, XP, Linux 2.4
- Supply voltage: via PCI-Bus (< 250 mA)
- Dimensions: 135 x 96 x 20 mm

NIC709-USB

Art.-No. 130 01 091

TP/XF 1250 / TP/FT-10

**USB-Network Interface**

PC-interface card (USB 1.1) as interface between PC and LON-networks with 3 integrated transceivers TP/FT-10, TP/XF1250 and RS-485. Supports the LNS/VNI functionality to operate LNS-compatible tools as well as the access to the network of LON-Manager-API based software (MIP) and of applications based on the ORION API.

It is possible to operate up to 8 applications (LNS/VNI, MIP or ORION API) on the same network interface at the same time. The device supports the use of protocol analysis- and system diagnostics software.

Technical Data

- Software (Windows): 98, ME, 2000, XP
- Supply voltage: 5 V (< 130 mA) via USB-Port
- Dimensions: 23 x 69 x 116 mm

NIC852 / NIC709-IP

Art.-No. see below

IP / TP/XF1250 / TP/FT-10

**LON-IP-Network Interface**

Interface between PC and LON-networks with integrated TP/FT-10 or TP/XF1250 transceiver (depending on the type). LNS/VNI-compatible to operate LNS3-based tools. Supports the remote network interface function to connect a PC with the network interface via the intranet and the internet, also via NAT firewalls. It is possible to operate up to 8 applications (LNS/VNI, MIP or ORION API) on the same network interface at the same time. The device supports the use of protocol analysis- and system diagnostics software.

Technical Data**NIC709-IPxE**

- Software (Windows): 98, ME, NT, 2000, XP
- Ethernet-Port: 10 Base-T
- Supply voltage: via enclosed power supply or 9 – 35 V DC, 12 – 24 V AC 50/60 Hz (< 300 mA @ 12 V)
- Dimensions: 145 x 92 x 28 mm

NIC-852

- Software (Windows): 98, ME, 2000, XP
- USB-Port: Full speed USB 1.1
- Supply voltage: via USB-Port

Available types	Type	Article number
LAN-Interface TP/FT	NIC709-IP3E	130 01 092
LAN-Interface TP/XF1250	NIC709-IP1E	130 01 093
LAN-Interface IP-852	NIC-852	130 01 094

LPA-IP

Art.-No. 130 01 095

new

**Packaging unit consisting of:**

- Protocol analyzer-Software LPA-IP-SW for EIA-852
- Network-Interface-Adapter NIC 852

Technical Data

- Software (Windows): 98, ME, 2000, XP
- USB-Port: Full speed USB 1.1
- Supply voltage: via USB-Port

Protocol Analysator Software for IP-852 Ethernet-Channel

- For analysis of data traffic in IP-852-Ethernet-channel in LON networks and for the integration of SNVTs (Standard network variables) as well as network management- and network diagnostics-messages.
- Additional remote-recording of LON-channels (EIA709) via router.
- Long-term packet recording capability with high-resolution time stamp for each packet
- Storing and exporting packet logs (e.g. to Excel spread sheets)
- Conversion of network addresses and variables into symbolic names
- LNS database interpretation

LPA-SET-USB

Art.-No. 130 01 096

LPT

PlugIn

new

**Packaging unit consisting of:**

- Protocol analyzer-Software LPA-IP-SW for EIA-852
- Network-Interface-Adapter NIC 852
- Protocol analyzer Software LPA-SW
- Network-Interface-Adapter NIC709-USB

Technical Data

- see single products

Protocol analyzer Software for IP-852 Ethernet-Channel

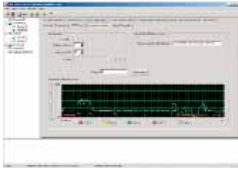
- For analysis of data traffic in IP-852-Ethernet-channel in LON networks and for the integration of SNVTs (Standard network variables) as well as network management- and network diagnostics-messages.
- Additional remote-recording of LON-channels (EIA709) via router.
- Long-term packet recording capability with high-resolution time stamp for each packet
- Storing and exporting packet logs (e.g. to Excel spread sheets)
- Conversion of network addresses and variables into symbolic names
- LNS database interpretation



LSD-SW

Art.-No. 130 01 990

new

**System-Diagnostics-Tool**

- Software for online-monitoring of channel load and defective packets on all channels.
- Display of statistic data.
- Diagnostics of the complete network is possible via L-Switch^{XP} and IP-Router.
- Comfortable user interface to access information regarding network statistics which is saved in the L-Switch^{XP} and the L-IP.
- Remote configuration, firmware update of L-Switch^{XP}/L-IP/L-Proxy devices via the network and access to extended features.
- A network interface of the type NIC709 or NIC852 is necessary to access the LON-network and for registration.

Technical Data

- Software (Windows): 98, NT, ME, 2000, XP

LPA-SW

Art.-No. 130 01 991

new

**Protocol Analyzer Software for TP/XF-1250 and TP/FT-10 Channels**

- Software to analyze the data traffic in TP/XF-1250 and TP/FT-10 channels and to interpret SNVTs (standard network variable types) as well as network management- and network diagnostics messages.
- Long-run recording is possible with a high-precision time stamp for each packet.
- Data or export is saved in log-files.
- Due to the calibration with a LNS-database it is possible to replace the packet addresses with the corresponding name- and network variable names.
- A network interface of the type NIC709 or NIC852 is necessary to access the LON-network and for registration.

Technical Data

- Software (Windows): 98, NT, ME, 2000, XP

LVIS-3E100

Art.-No. 130 01 130

IP / TP/FT-10

new

**Operating unit L-VIS**

Operating unit for LON networks with anodized aluminum surface and touch display. High-resolution LC-display (320 x 240, 256 colors) with backlight. Control and visualization arbitrary data points (max. 512). The device comes with an input for an external temperature sensor and an external switch. Individual network variables can easily be created dynamically with LNS3.x based tools. Simple graphical programming with LNS-PlugIn. WYSIWIG preview function. The LC-touch display displays numbers, text, symbols, graphics, trend logs and many other items in a clear way. Access control with Pin code. L-VIS can be connected to a TP/FT-10 or IP-852 Ethernet channel. The unit is fully compatible with the EIA-709 and EIA-852 standard.

Available: June 2006

Technical Data

- Supply voltage: 12...24 V AC;
12...35 V DC
- Power consumption: 3 W (max. 7 W)
- Connection Ethernet: RJ-45 Stecker
- LON, supply: 0,5...2,5 mm²
- Display: 320 x 240 dots,
256 colors, backlight
- Protection type: IP 20
- Dimensions (BxHxT): 210 x 164 x 57 mm
- Cut-out dimensions: 180 x 150 mm
- Mounting: flush mounting, hollow wall or in cabinet doors with included frame.

L-TEMP

Art.-No. 130 01 999

new

**Temperature sensor for L-VIS**

To be connected to the operating unit L-VIS for measuring the environmental temperature.

Available: June 2006

Technical Data

- Connection: 3-core cable
- Metering range: -10...85°C
- Protection type: IP 20
- Dimensions (BxHxT): 71 x 71 x 26 mm
- Mounting: surface mounting





LON-Bus Coupling Unit

The LON-Bus Coupling Unit is the basic module for all flush-mounting components. It is the mechanical, electrical and data-technical connection between a design module of the companies Berker, Gira and Jung and the LON-network.

As design-modules a large variety of

- push-buttons
 - movement detectors
 - temperature controllers
 - room climate modules
- are available which belong to the product programs of the companies Berker, Gira and Jung.

You will find further combinations on the following pages.

Functional safety

ELKA offers the design modules in combination with the LON-Bus Coupling Unit as tested bundle. Thus, a high degree of functional safety is achieved in the project.

Due to this combination the architects' design requirements can also be fulfilled in LON-projects. The LON-operation devices are integrated into the product ranges of all the other electric components as sockets, data sockets etc.

The functionality of the combination between design-module and LON-bus coupling unit is parameterised via an LNS-PlugIn available free of charge.

Supply

As the LON-bus coupling unit disposes of a link-power-transceiver (LPT), it is supplied with the necessary electrical power out of the LON-network. Data as well as supply voltage is led via the same wire pair. An additional power supply is not necessary.

Functional extensions

Using bus coupling units, functional extensions or changes which cause a change of the operation device, can easily be realised without altering the cabling.

Thus, e.g. a 2-fold push-button can be exchanged against a 4-fold one and thus additional operation possibilities are created by simply altering parameterising and without losses of bindings.

BA50 ULL

Art.-No. 130 01 002

LPT

PlugIn


**Bus Coupling Unit BA50 ULL
(flush-mounting)**

The bus coupling unit is the connection between the LON-network and an application module.

The following functionalities can be adjusted for each push-button separately: toggle, switch, control, scene-panel, occupancy and switch-/control attitude.

The functionality of the bus coupling unit is especially aligned to the modules of the manufacturers Berker, Gira and Jung and is also available as complete bundle with one of these modules. Other manufacturers on request.

Technical Data

- Power supply: typ. 1,5 LPU (= 9 mA)
max. 2 LPU (= 12 mA)
- Protection type: IP 20
- Dimensions: 45 x 48 x 33 mm
- Installation: Junction switch box Ø 60 mm

BA50-G ULL

Art.-No. 130 04 002

LPT

PlugIn


**Bus Coupling Unit BA50-G ULL
(flush-mounting)**

See BA50 ULL, but with centering element to angle Gira design frames.

Technical Data

- Power supply: typ. 1,5 LPU (= 9 mA)
max. 2 LPU (= 12 mA)
- Protection type: IP20
- Dimensions: 45 x 48 x 33 mm
- Installation: Junction switch box Ø 60 mm



RCM	Art.-No. 131 0...	LPT	PlugIn
	RoomClimate-Module Complete bundle with LON-bus coupling unit BA50 ULL/BA50-G ULL. The RoomClimate Module is available in all design series of the companies Berker, Gira and Jung. Functions: Measurement of the room temperature, alteration of the temperature set point, display of operation status and alteration of fan stages. The following functionalities can be adjusted for each push-button separately: toggle, switch, control, scene-panel, occupancy and switch-/control behavior. Depending on the project the number of LED and push-buttons as well as the imprint can be adjusted.	Technical Data • Module for bus-coupling unit type BA50 ULL/BA50-G ULL (included in delivery) • LED: 0...8 • Push-buttons: 0...2 • Turning knob: 1 • Temperature measurement: integrated • Measuring range: 0 to +40 °C • Protection type: IP 20 (Design frame not included in delivery)	

RCM	Art.-No. 131 0...	LPT	PlugIn
	RoomClimate-Module with external push-button module Complete bundle with LON-bus coupling unit BA50 ULL/BA50-G ULL and external push-button module (TM2 or TM4 depending on the type). Other functions see RCM without ext. push-button module.	Technical Data • Module for bus-coupling unit type BA50 ULL/BA50-G ULL (included in delivery) • LED: 0...8 • Push-buttons: 0...2 • Turning knob: 1 • External push-button module: depending on the type - TM2: 2 push-buttons (for standard single rocker) - TM4: 4 push-buttons (for standard serial rocker) • Temperature measurement: integrated • Measuring range: 0 to +40 °C • Protection type: IP 20 (Rockers and design frame not included in delivery.)	





Experience, a feeling for forms and perfection in workmanship – these are the new Berker products. For architects and planners, for expert craftsmen and clients and simply for all who have pleasure in exceptional design.

B.IQ

Art.-No. see below

LPT

PlugIn

**Room Operation Device B.IQ**

Complete bundle with LON-bus coupling unit BA50R ULL.

Via a LNS-PlugIn individual functions can be set separately for each push-button or for a complete rocker: toggle, switch, control, scene panel, occupancy, control fan stages etc. and the switch-/control behavior. At all types a back-lighted display with up to two lines indicates the operation states of the room, the week day, the time, the temperature and a push-button help. Measurement of the room temperature via an integrated sensor. An integrated IR-receiver (depending on the type) allows using the corresponding remote control. Labeling via a separate label element (not included in delivery) which can be lighted via a status-LED.

(Design frame not required for this system)

Technical Data

- Power supply: min. 1,8 LPU (= 11 mA)
max. 3,4 LPU (= 23 mA)
- Protection type: IP 20
- Dim.: B.IQ 1.4-yy: 88,5 x 119,6 x 15 mm
B.IQ 1.5-yy: 88,5 x 149,2 x 15 mm
B.IQ 1.6-yy: 88,5 x 178,8 x 15 mm
B.IQ 1.4IR-yy: 88,5 x 127 x 15 mm
B.IQ 1.5IR-yy: 88,5 x 156,5 x 15 mm
B.IQ 1.6IR-yy: 88,5 x 186 x 15 mm
- Installation: Junction switch box Ø 60 mm

(Label element not included in delivery)

Available types	Description	Type	Colour	Article number
4 rockers / 8 push-buttons / 6 LED  with IR-receiver	Room operat. dev. B.IQ 1.4-PW ULL	LON.B.IQ 1.4 pw	Polar white	131 03 048
	Room operat. dev. B.IQ 1.4-ES ULL	LON.B.IQ 1.4 ES	Stainless steel	131 03 049
	Room operat. dev. B.IQ 1.4-GL ULL	LON.B.IQ 1.4 GL	Glass	131 03 050
	Room operat. dev. B.IQ 1.4IR-PW ULL	LON.B.IQ 1.4IR pw	Polar white	131 03 059
	Room operat. dev. B.IQ 1.4IR-ES ULL	LON.B.IQ 1.4IR ES	Stainless steel	131 03 060
	Room operat. dev. B.IQ 1.4IR-GL ULL	LON.B.IQ 1.4IR GL	Glass	131 03 061
5 rockers / 10 push-buttons / 8 LED  with IR-receiver	Room operat. dev. B.IQ 1.5-PW ULL	LON.B.IQ 1.5 pw	Polar white	131 03 070
	Room operat. dev. B.IQ 1.5-ES ULL	LON.B.IQ 1.5 ES	Stainless steel	131 03 071
	Room operat. dev. B.IQ 1.5-GL ULL	LON.B.IQ 1.5 GL	Glass	131 03 072
	Room operat. dev. B.IQ 1.5IR-PW ULL	LON.B.IQ 1.5IR pw	Polar white	131 03 073
	Room operat. dev. B.IQ 1.5IR-ES ULL	LON.B.IQ 1.5IR ES	Stainless steel	131 03 074
	Room operat. dev. B.IQ 1.5IR-GL ULL	LON.B.IQ 1.5IR GL	Glass	131 03 075
6 rockers / 12 push-buttons / 10 LED  with IR-receiver	Room operat. dev. B.IQ 1.6-PW ULL	LON.B.IQ 1.6 pw	Polar white	131 03 076
	Room operat. dev. B.IQ 1.6-ES ULL	LON.B.IQ 1.6 ES	Stainless steel	131 03 077
	Room operat. dev. B.IQ 1.6-GL ULL	LON.B.IQ 1.6 GL	Glass	131 03 078
	Room operat. dev. B.IQ 1.6IR-PW ULL	LON.B.IQ 1.6IR pw	Polar white	131 03 079
	Room operat. dev. B.IQ 1.6IR-ES ULL	LON.B.IQ 1.6IR ES	Stainless steel	131 03 080
	Room operat. dev. B.IQ 1.6IR-GL ULL	LON.B.IQ 1.6IR GL	Glass	131 03 081

IR-T24.10

Art.-No. 130 03 910

**Infrared Remote Control for B.IQ**

Battery-powered IR-remote control;
8 channel keys (ON / Off, dimming, sunblind),
3 channel group keys (A, B, C),
3 channel group LED (also sending- and battery state-LED).
The required batteries 4 x micro, alkaline (LR03) are not included in delivery.

Technical Data

- IR-channel: 24
- IR-transmitting range: 10 m
- Code: RC5
- Operating voltage: 6 V DC
- Dimensions: 192 x 53 x 23 mm
- Color: Anthracite

Art.-No. see below

LPT

PlugIn

**Design: Berker B.IQ**

Complete bundle of application module plus
LON-bus coupling unit BA50 ULL.

(Label element not included in delivery)

(Design frame not required for this system)

Technical Data

- Module for bus coupling unit BA50 ULL
(included in delivery)

Available types	Description	Type	Colour	Article number
	LON-BCU incl. module with 2 push-buttons / 1 LED	LON.BIQ-T2.1 pw	Polar white	131 03 044
		LON.BIQ-T2.1 ES	Stainless steel	131 03 055
		LON.BIQ-T2.1 GL	Glass	131 03 066
	LON-BCU incl. module with 2 push-buttons / 2 LED	LON.BIQ-T2.2 pw	Polar white	131 03 040
		LON.BIQ-T2.2 ES	Stainless steel	131 03 051
		LON.BIQ-T2.2 GL	Glass	131 03 062
	LON-BCU incl. module with 4 push-buttons / 2 LED	LON.BIQ-T4.2 pw	Polar white	131 03 045
		LON.BIQ-T4.2 ES	Stainless steel	131 03 056
		LON.BIQ-T4.2 GL	Glass	131 03 067
	LON-BCU incl. module with 4 push-buttons / 4 LED	LON.BIQ-T4.4 pw	Polar white	131 03 041
		LON.BIQ-T4.4 ES	Stainless steel	131 03 052
		LON.BIQ-T4.4 GL	Glass	131 03 063
	LON-BCU incl. module with 6 push-buttons / 3 LED	LON.BIQ-T6.3 pw	Polar white	131 03 046
		LON.BIQ-T6.3 ES	Stainless steel	131 03 057
		LON.BIQ-T6.3 GL	Glass	131 03 068
	LON-BCU incl. module with 6 push-buttons / 6 LED	LON.BIQ-T6.6 pw	Polar white	131 03 042
		LON.BIQ-T6.6 ES	Stainless steel	131 03 053
		LON.BIQ-T6.6 GL	Glass	131 03 064
	LON-BCU incl. module with 8 push-buttons / 4 LED	LON.BIQ-T8.4 pw	Polar white	131 03 047
		LON.BIQ-T8.4 ES	Stainless steel	131 03 058
		LON.BIQ-T8.4 GL	Glass	131 03 069
	LON-BCU incl. module with 8 push-buttons / 8 LED	LON.BIQ-T8.8 pw	Polar white	131 03 043
		LON.BIQ-T8.8 ES	Stainless steel	131 03 054
		LON.BIQ-T8.8 GL	Glass	131 03 065
	Label element for B.IQ 1...3-fold	BF.BIQ1-3 tr	transparent	130 03 950
	Label element for B.IQ 4-fold	BF.BIQ4 tr	transparent	130 03 951
	Label element for B.IQ 5-fold	BF.BIQ5 tr	transparent	130 03 952

Art.-No. see below

LPT

PlugIn

**Design: Berker S.1 / B.1 / B.3 / B.7 / Glass**

Complete bundle "Design module with LON-bus coupling unit BA50 ULL"
(Type LON.S1-T.., LON.B17-T.., LON.B137-T..)

Recommended color variants:

S.1: polar white
B.1: anthracite / aluminium / polar white
B.3: aluminium, anthracite
B.7/Glass: glass, polar white

(Design frame not included in delivery)

Technical Data

- Power consumption:
typ. 1,5 LPU (= 9 mA)
max. 2 LPU (= 12 mA)
- Protection type: IP 20
- Dimensions: 45 x 48 x 33 mm
- Installation: Junction switch box Ø 60 mm

(Fitting bus coupling unit included in delivery)

Available types	Description	Type	Colour	Article number
	LON-BCU incl. module with 2 push-buttons / 1 LED	LON.S1-T2.1 pw	Polar white	131 03 027
		LON.B17-T2.1 al	Aluminium	131 03 087
		LON.B137-T2.1 an	Anthracite	131 03 098
	LON-BCU incl. module with 2 push-buttons / 2 LED	LON.S1-T2.2 pw	Polar white	131 03 030
		LON.B17-T2.2 al	Aluminium	131 03 088
		LON.B137-T2.2 an	Anthracite	131 03 099
	LON-BCU incl. module with 4 push-buttons / 2 LED	LON.S1-T4.2 pw	Polar white	131 03 028
		LON.B17-T4.2 al	Aluminium	131 03 089
		LON.B137-T4.2 an	Anthracite	131 03 100
	LON-BCU incl. module with 4 push-buttons / 4 LED	LON.S1-T4.4 pw	Polar white	131 03 031
		LON.B17-T4.4 al	Aluminium	131 04 090
		LON.B137-T4.4 an	Anthracite	131 03 517
	LON-BCU incl. module with 8 push-buttons / 4 LED	LON.S1-T8.4 pw	Polar white	131 03 029
		LON.B17-T8.4 al	Aluminium	131 03 091
		LON.B137-T8.4 an	Anthracite	131 03 516
	LON-BCU incl. module with 8 push-buttons / 8 LED	LON.S1-T8.8 pw	Polar white	131 03 032
		LON.B17-T8.8 al	Aluminium	131 03 092
		LON.B137-T8.8 an	Anthracite	131 03 518
	LON-BCU incl. movement sensor standard 180° / 1,10 m	LON.S1-PIR1.1S pw	Polar white	131 03 025
		LON.S1-PIR1.1S al	Aluminium	131 03 093
		LON.S1-PIR1.1S an	Anthracite	131 03 104
	LON-BCU incl. movement sensor standard 180° / 2,20 m	LON.S1-PIR2.2S pw	Polar white	131 03 026
		LON.S1-PIR2.2S al	Aluminium	131 03 094
		LON.S1-PIR2.2S an	Anthracite	131 03 105
	LON-BCU incl. movement sensor comfort (with manual operation) 180° / 1,10 m	LON.S1-PIR1.1K pw	Polar white	131 03 037
		LON.S1-PIR1.1K al	Aluminium	131 03 095
		LON.S1-PIR1.1K an	Anthracite	131 03 106
	LON-BCU incl. movement sensor comfort (with manual operation) 180° / 2,20 m	LON.S1-PIR2.2K pw	Polar white	131 03 038
		LON.S1-PIR2.2K al	Aluminium	131 03 096
		LON.S1-PIR2.2K an	Anthracite	131 03 107
	LON-BCU incl. room temperature controller	LON.S1-RTR-04 pw	Polar white	131 03 033
		LON.S1-RTR-04 al	Aluminium	131 03 097
		LON.S1-RTR-04 an	Anthracite	131 03 108
	LON-BCU incl. RoomClimate-Module with external push-button module	RCM 82489.00 B-S1	Polar white	131 03 514
		RCM 82483.00 B-B17	Aluminium	131 03 524
		RCM 82485.00 B-B137	Anthracite	131 03 534
	LON-BCU incl. RoomClimate-Module without external push-button module	RCM 82089.00 B-S1	Polar white	131 03 510
		RCM 82083.00 B-B17	Aluminium	131 03 520
		RCM 82085.00 B-B137	Anthracite	131 03 530





GIRA

Modern electrical installation from Gira offers a wide range of intelligent building technology for comfort and security. In addition to highest technical quality Gira attaches great importance to product design: In intensive cooperation with external and Gira-internal design teams products are realised which keep winning awards for their extraordinary and clear design.

LON.F100.xx	Art.-No. see below	LPT			new
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**Room operation panel F100**

Complete bundle with LON-bus coupling unit BA50R-G ULL.

Via LNS-PlugIn individual functions can be set separately for each push button or for a complete rocker: toggle, switch, control, scene panel, occupancy, control of fan stages, etc. as well as the switch-/control behavior.

A display allows the indication of operation states of a room, the week day, the time and the temperature. Measurement of the room temperature via integrated sensor.

(Design frame not included in delivery)

Available: March 2007

Technical Data

- Module for bus coupling unit type BA50R-G ULL (included in delivery)
- Power consumption:
min. 1,8 LPU (= 11 mA)
max. 3,9 LPU (= 24 mA)
- Protection type: IP20
- Mounting: Junction switch box Ø 60 mm

Available types	Description	Type	Colour	Article number
	LON-BCU incl. Room operation panel F100 3-fold (6 push-buttons / 6 LED)	LON.F100.30 cwg	cream white glossy	131 04 100
		LON.F100.30 rwg	pure white glossy	131 04 110
	LON-BCU incl. Room operation panel F100 4-fold (8 push-buttons / 8 LED)	LON.F100.22 cwg	cream white glossy	131 04 101
		LON.F100.22 rwg	pure white glossy	131 04 111
	LON-BCU incl. Room operation panel F100 7-fold (14 push-buttons / 14 LED)	LON.F100.43 cwg	cream white glossy	131 04 102
		LON.F100.43 rwg	pure white glossy	131 04 112

LON.F100.xx

Art.-No. see below

LPT

new

**Push buttons F100**

Complete bundle with LON bus coupling unit BA50-G ULL.

Via LNS-PlugIn individual functions can be set separately for each push button or for a complete rocker: toggle, switch, control, scene panel, occupancy, etc. as well as the switch-/control behavior.

Technical Data

- Module for bus coupling unit type BA50-G ULL (included in delivery)
- Power consumption:
typ. 1,5 LPU (= 9 mA)
max. 2 LPU (= 12 mA)
- Protection type: IP 20
- Mounting: Junction switch box Ø 60 mm

(Design frame not included in delivery)

Available: March 2007

Available types	Description	Type	Colour	Article number
	LON-BCU incl. module 1-fold (2 push-buttons / 1 LED)	LON.F100-T2.1 cwg	cream white glossy	131 04 093
		LON.F100-T2.1 rwg	pure white glossy	131 04 103
	LON-BCU incl. module 1-fold (2 push-buttons / 2 LED)	LON.F100-T2.2 cwg	cream white glossy	131 04 094
		LON.F100-T2.2 rwg	pure white glossy	131 04 104
	LON-BCU incl. module 2-fold (4 push-buttons / 2 LED)	LON.F100-T4.2 cwg	cream white glossy	131 04 095
		LON.F100-T4.2 rwg	pure white glossy	131 04 105
	LON-BCU incl. module 2-fold (4 push-buttons / 4 LED)	LON.F100-T4.4 cwg	cream white glossy	131 04 096
		LON.F100-T4.4 rwg	pure white glossy	131 04 106
	LON-BCU incl. module 3-fold (6 push-buttons / 6 LED)	LON.F100-T6.6 cwg	cream white glossy	131 04 097
		LON.F100-T6.6 rwg	pure white glossy	131 04 107
	LON-BCU incl. module 4-fold (8 push-buttons / 8 LED)	LON.F100-T8.8 cwg	cream white glossy	131 04 098
	for single cover frame	LON.F100-T8.8 rwg	pure white glossy	131 04 108
	LON-BCU incl. module 4-fold (8 push-buttons / 8 LED)	LON.F100-T8.8-2 cwg	cream white glossy	131 04 099
	for cover frame without crossbar	LON.F100-T8.8-2 rwg	pure white glossy	131 04 109
	LON-BCU incl. movement detector standard 180° / 1,10 m	LON.F100-PIR1.1S cwg	cream white glossy	131 04 113
		LON.F100-PIR1.1S rwg	pure white glossy	131 04 117
	LON-BCU incl. movement detector standard 180° / 2,20 m	LON.F100-PIR2.2S cwg	cream white glossy	131 04 114
		LON.F100-PIR2.2S rwg	pure white glossy	131 04 118
	LON-BCU incl. movement detector comfort (with manual operation) 180° / 1,10 m	LON.F100-PIR1.1K cwg	cream white glossy	131 04 115
		LON.F100-PIR1.1K rwg	pure white glossy	131 04 119
	LON-BCU incl. movement detector comfort (with manual operation) 180° / 2,20 m	LON.F100-PIR2.2K cwg	cream white glossy	131 04 116
		LON.F100-PIR2.2K rwg	pure white glossy	131 04 120
	LON-BCU incl. room temperature controller	Mounting of central inserts of the program System 55 in cover frames F100 is possible using the combination-intermediate frame. (see catalogue Gira)		on demand
	LON-BCU incl. Room-Climate- module with external push- buttons			
	LON-BCU incl. Room-Climate- Module without external push- button module			

LON.TS2.3x	Art.-No. see below	LPT		PlugIn
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Room Operation Device TS2 plus

Complete bundle with LON-bus coupling unit BA50R-G ULL.

Via a LNS-PlugIn individual functions can be set separately for each push-button or for a complete rocker: toggle, switch, control, scene panel, occupancy, control fan stages etc. and the switch-/control behavior.

At both variants (6 rockers and 3 rockers) a display indicates the operation states of the room, the week day, the time and the temperature. Measurement of the room temperature via an integrated sensor.

(Design frame not included in delivery)

Technical Data

- Module für bus coupling unit: BA50R-G ULL (included in delivery)
- Protection type: IP 20
- Installation: Junction switch box Ø 60 mm

A nearly plane mounting is possible in the Gira cover frame E22 using the appropriate mounting box. Mounting of Room operation panels in cover frames F100 is possible using the combination-intermediate frame Room operation panels

(see catalogue Gira)

Available	Description	Type	Colour of rocker	Article number
	LON-BCU incl. room operation device TS2.30 plus ULL (6 push-buttons / 6 LED)	LON.TS2.30N	clear mint	131 04 050
		LON.TS2.30K	clear white	131 04 076
	LON-BCU incl. room operation device TS2.33 plus ULL (12 push-buttons / 12 LED)	LON.TS2.33N	clear mint	131 04 052
		LON.TS2.33K	clear white	131 04 078

Art.-No. see below

LPT

PlugIn

**Design: Gira TS2**

Complete bundle of application module plus
LON-bus coupling unit BA50 ULL.

(Design frame not included in delivery)

Types in different colors / of different materials
and/or in different designs on request.

Technical Data

- Module for bus coupling unit BA50-G ULL
(included in delivery)

A nearly plane mounting is possible in the Gira
cover frame E22 using the appropriate mounting
box. Mounting of Room operation panels in
cover frames F100 is possible using the combi-
nation-intermediate frame Room operation
panels

(see catalogue Gira)

Available types	Description	Type	Colour	Article number
	LON-BCU incl. module with 2 push-buttons / 1 LED	LON.TS2-T2.1N	clear mint	131 04 025
		LON.TS2-T2.1K	clear white	131 04 068
	LON-BCU incl. module with 2 push-buttons / 2 LED	LON.TS2-T2.2N	clear mint	131 04 053
		LON.TS2-T2.2K	clear white	131 04 069
	LON-BCU incl. module with 4 push-buttons / 2 LED	LON.TS2-T4.2N	clear mint	131 04 026
		LON.TS2-T4.2K	clear white	131 04 070
	LON-BCU incl. module with 4 push-buttons / 4 LED	LON.TS2-T4.4N	clear mint	131 04 054
		LON.TS2-T4.4K	clear white	131 04 071
	LON-BCU incl. module with 6 push-buttons / 3 LED	LON.TS2-T6.3N	clear mint	131 04 027
		LON.TS2-T6.3K	clear white	131 04 072
	LON-BCU incl. module with 6 push-buttons / 6 LED	LON.TS2-T6.6N	clear mint	131 04 028
		LON.TS2-T6.6K	clear white	131 04 073
	LON-BCU incl. module with 8 push-buttons / 8 LED	LON.TS2-T8.8N	clear mint	131 04 029
		LON.TS2-T8.8K	clear white	131 04 074
	LON-BCU incl. module with 12 push-buttons / 12 LED	LON.TS2-T12.12N	clear mint	131 04 030
		LON.TS2-T12.12K	clear white	131 04 075
	LON-BCU incl. movement detector standard 180° / 1,10 m	LON.S55-PIR1.1S al	Aluminium	131 04 064
		LON.S55-PIR1.1S rw	pure white	131 04 009
		LON.S55-PIR1.1S an	Anthracite	131 04 020
	LON-BCU incl. movement detector standard 180° / 2,20 m	LON.S55-PIR2.2S al	Aluminium	131 04 065
		LON.S55-PIR2.2S rw	pure white	131 04 010
		LON.S55-PIR2.2S an	Anthracite	131 04 021
	LON-BCU incl. movement detector comfort (with manual operation) 180° / 1,10 m	LON.S55-PIR1.1K al	Aluminium	131 04 066
		LON.S55-PIR1.1K rw	pure white	131 04 060
		LON.S55-PIR1.1K an	Anthracite	131 04 062
	LON-BCU incl. movement detector comfort (with manual operation) 180° / 2,20 m	LON.S55-PIR2.2K al	Aluminium	131 04 067
		LON.S55-PIR2.2K rw	pure white	131 04 061
		LON.S55-PIR2.2K an	Anthracite	131 04 063
	LON-BCU incl. room temperature controller	LON.S55-RTR-04 al	Aluminium	131 04 024
		LON.S55-RTR-04 rw	pure white	131 04 017
		LON.S55-RTR-04 an	Anthracite	131 04 018
	LON-BCU incl. Room-Climate- Module with external push-button module	RCM 82426.00 G-S55	Aluminium	131 04 534
		RCM 82427.00 G-S55	pure white	131 04 514
		RCM 82428.00 G-S55	Anthracite	131 04 524
	LON-BCU incl. Room-Climate- Module without external push- button module	RCM 82026.00 G-S55	Aluminium	131 04 530
		RCM 82027.00 G-S55	pure white	131 04 510
		RCM 82028.00 G-S55	Anthracite	131 04 520

RCP 733x ULF...

Art.-No. see below

FTT / e2i

24 V AC / DC

PlugIn

Ausgezeichnet mit dem **red dot****Room Control Panel SmartSensor**

Room-oriented control- and operation unit consisting of a flush-mounting controller RC10 ULF and a design module with 1...4 rockers for direct control of the »everyday functions« (favorite functions). Backlighted LC-display to realize a clear menu structure. Operation via a backlighted navigation knob by turning / pushing. The number of rockers for direct control can be extended modularly by employing e2i-bus coupling units and the corresponding design push-button modules. A temperature sensor (PT1000 KI. A) to measure the room temperature is integrated. Variable network interface to adapt to project-specific conditions. Further functions of the device: temperature controller, alarm system, timer. Extendable via e2i-RadioReceiver Module for remote control via instafunk-components (transmitter only) as well as via SmartSensor *light e2i* for room operation of up to 3 further rooms.

Technical Data

- Supply voltage: 24 V AC / DC $\pm 10\%$
- Number of connectable modules: depending on project
- Bus loads (source): 44
- Installation flush-mounting: dual junction switch box
Installation hollow wall: dual junction switch box
Installation concrete: BS2-universal box
- Protection type: IP 20
- Dimensions
Design module SmartSensor: 92 x 168 x 17 mm
Controller flush-mounting: 70,9 x 142 x 30 mm

(Design frame not required for this system)

Available types	Description	Type	Colour	Article number
	RC10 ULF incl. SmartSensor with 2 push-buttons / 2 LED	RCP 7331 ULF rw gl	pure white glossy	131 04 901
		RCP 7331 ULF an	Anthracite	131 04 911
		RCP 7331 ULF al	Aluminium	131 04 921
	RC10 ULF incl. SmartSensor with 4 push-buttons / 4 LED	RCP 7332 ULF rw gl	pure white glossy	131 04 902
		RCP 7332 ULF an	Anthracite	131 04 912
		RCP 7332 ULF al	Aluminium	131 04 922
	RC10 ULF incl. SmartSensor with 4 push-buttons / 4 LED	RCP 7333 ULF rw gl	pure white glossy	131 04 903
		RCP 7333 ULF an	Anthracite	131 04 913
		RCP 7333 ULF al	Aluminium	131 04 923
	RC10 ULF incl. SmartSensor with 8 push-buttons / 8 LED	RCP 7334 ULF rw gl	pure white glossy	131 04 904
		RCP 7334 ULF an	Anthracite	131 04 914
		RCP 7334 ULF al	Aluminium	131 04 924

e2i.ITS30-T...
LON.ITS30-Tx.x ...

Art.-No. see below

LPT/e2i

24 V AC/DC

PlugIn



Design: Gira ITS30 / SmartSensor

- LON-operating unit: Complete bundle "Design module with LON-bus coupling unit BA50-G ULL" (Type LON.ITS30-T...)
- Extension module for LON-controller with e2i-interface (e.g. SmartSensor, BC10 RLF, AC101 RLF): Complete bundle "Extension module with e2i-bus coupling unit" (Type e2i.ITS30-T...)

(Design frame not required for this system)

Technical Data

LON:

- Power consumption: typ. 1,5 LPU (= 9 mA) max. 2 LPU (= 12 mA)
- Protection type: IP 20
- Dimensions: 45 x 48 x 33 mm
- Installation: Junction switch box Ø 60 mm

e2i:

- Design module

	Bus loads (source)
Push-button 1-fold	4
Push-button 2-fold	4
Push-button 3-fold	4
Push-button 4-fold	4
- Topology: Line, Star, Tree
- Cable length: max. 50 m
- Protection type: IP 20
- Dimensions: 93 x 93 x 16,5 mm
- Installation: Junction switch box Ø 60 mm also see EBA-G 1U

(Fitting bus coupling unit included in delivery)

Available types	Description	Type	Colour	Article number
	LON-BCU incl. module with 2 push-buttons / 2 LED	LON.ITS30-T2.2 rw	pure white glossy	131 04 905
		LON.ITS30-T2.2 an	Anthracite	131 04 915
		LON.ITS30-T2.2 al	Aluminium	131 04 925
	e2i-BCU incl. module with 2 push-buttons / 2 LED	e2i.ITS30-T2.2 rw	pure white glossy	141 04 001
		e2i.ITS30-T2.2 an	Anthracite	141 04 011
		e2i.ITS30-T2.2 al	Aluminium	141 04 021
	LON-BCU incl. module with 4 push-buttons / 4 LED	LON.ITS30-T4.4 rw	pure white glossy	131 04 906
		LON.ITS30-T4.4 an	Anthracite	131 04 916
		LON.ITS30-T4.4 al	Aluminium	131 04 926
	e2i-BCU incl. module with 4 push-buttons / 4 LED	e2i.ITS30-T4.4 rw	pure white glossy	141 04 002
		e2i.ITS30-T4.4 an	Anthracite	141 04 012
		e2i.ITS30-T4.4 al	Aluminium	141 04 022
	LON-BCU incl. module with 6 push-buttons / 6 LED	LON.ITS30-T6.6 rw	pure white glossy	131 04 907
		LON.ITS30-T6.6 an	Anthracite	131 04 917
		LON.ITS30-T6.6 al	Aluminium	131 04 927
	e2i-BCU incl. module with 6 push-buttons / 6 LED	e2i.ITS30-T6.6 rw	pure white glossy	141 04 003
		e2i.ITS30-T6.6 an	Anthracite	141 04 013
		e2i.ITS30-T6.6 al	Aluminium	141 04 023
	LON-BCU incl. module with 8 push-buttons / 8 LED	LON.ITS30-T8.8 rw	pure white glossy	131 04 908
		LON.ITS30-T8.8 an	Anthracite	131 04 918
		LON.ITS30-T8.8 al	Aluminium	131 04 928
	e2i-BCU incl. module with 8 push-buttons / 8 LED	e2i.ITS30-T8.8 rw	pure white glossy	141 04 004
		e2i.ITS30-T8.8 an	Anthracite	141 04 014
		e2i.ITS30-T8.8 al	Aluminium	141 04 024





Technical innovation, high quality standard and superior design determine the constant development of the Jung devices and systems for electrical installation.

LON.FD...

Art.-No. see below

LPT

PlugIn

new

**Room operation panel FD-design**

Complete delivery unit (no external bus coupling unit necessary).

Via LNS-PlugIn individual functions can be set separately for each push button or for a complete rocker: toggle, switch, control, scene panel, occupancy, control of fan stages, etc. as well as the switch-/control behavior.

The operation of the rockers can be set horizontal or vertical.

A display allows the indication of operation states of a room, the week day, the time and the temperature. Measurement of the room temperature via integrated sensor.

The rockers can be labeled individually (see also www.jung-beschriftungsservice.de).

Rockers, which can't be labeled or engraved rockers on request.

Technical Data

- Supply voltage:
min. 1,8 LPU (= 11 mA)
max. 2,7 LPU (= 18 mA)
- Protection type: IP 20
- Dimensions: 96 x 167 mm (incl. frame)
- Mounting: Junction switch box Ø 60 mm

(Design frame not included in delivery)

Available: March 2007

Available types	Description	Type	Colour	Article number
	LON-Room operation panel 4-fold (8 push-buttons / 8 LED)	LON.FD 3094 WW	White	131 05 304
		LON.FD 3094 LG	Light grey	131 05 314
		LON.FD ES 3094	Stainless Steel	131 05 324
		LON.FD AL 3094	Aluminium	131 05 334
		LON.FD AL 3094 AN	Aluminium Anthracite	131 05 344
	LON-Room operation panel 6-fold (12 push-buttons / 12 LED)	LON.FD 3096 WW	White	131 05 306
		LON.FD 3096 LG	Light grey	131 05 316
		LON.FD ES 3096	Stainless Steel	131 05 326
		LON.FD AL 3096	Aluminium	131 05 336
		LON.FD AL 3096 AN	Aluminium Anthracite	131 05 346

LON.FD...

Art.-No. see below

LPT

PlugIn

new

**Push buttons FD-design**

Complete bundle with LON bus coupling unit BA50 ULL.

Via LNS-PlugIn individual functions can be set separately for each push button or for a complete rocker: toggle, switch, control, scene panel, occupancy, etc. as well as the switch-/control behavior.

Available March 2007

Technical Data

- Module for bus coupling unit type BA50 ULL (included in delivery)
- Power consumption:
typ. 1,5 LPU (= 9 mA)
max. 2 LPU (= 12 mA)
- Protection type: IP20
- Mounting: Junction switch box Ø 60 mm

(Design frame not included in delivery)

Available types	Description	Type	Colour	Article number
	LON-BCU incl. module 1-fold (2 push-buttons / 1 LED)	LON.FD-T2.1 WW	White	131 05 121
		LON.FD-T2.1 LG	Light grey	131 05 131
		LON.FD-ES T2.1	Stainless Steel	131 05 141
		LON.FD-AL T2.1	Aluminium	131 05 151
		LON.FD-AL T2.1 AN	Aluminium Anthracite	131 05 161
	LON-BCU incl. module 2-fold (4 push-buttons / 2 LED)	LON.FD-T4.2 WW	White	131 05 122
		LON.FD-T4.2 LG	Light grey	131 05 132
		LON.FD-ES T4.2	Stainless Steel	131 05 142
		LON.FD-AL T4.2	Aluminium	131 05 152
		LON.FD-AL T4.2 AN	Aluminium Anthracite	131 05 162
	LON-BCU incl. module 3-fold (6 push-buttons / 3 LED)	LON.FD-T6.3 WW	White	131 05 123
		LON.FD-T6.3 LG	Light grey	131 05 133
		LON.FD-ES T6.3	Stainless Steel	131 05 143
		LON.FD-AL T6.3	Aluminium	131 05 153
		LON.FD-AL T6.3 AN	Aluminium Anthracite	131 05 163
	LON-BCU incl. module 4-fold (8 push-buttons / 4 LED)	LON.FD-T8.4 WW	White	131 05 124
		LON.FD-T8.4 LG	Light grey	131 05 134
		LON.FD-ES T8.4	Stainless Steel	131 05 144
		LON.FD-AL T8.4	Aluminium	131 05 154
		LON.FD-AL T8.4 AN	Aluminium Anthracite	131 05 164
	LON-BCU incl. movement detector standard 180° / 1,10 m	Mounting of central inserts of program LS990, Stainless steel or Aluminum in cover frames of FD-design is possible using the adapter frame FD981Z. (see catalogue Jung)		on demand
	LON-BCU incl. movement detector standard 180° / 2,20 m			
	LON-BCU incl. movement detector comfort (with manual operation) 180° / 1,10 m			
	LON-BCU incl. movement detector comfort (with manual operation) 180° / 2,20 m			
	LON-BCU incl. room temperature controller			
	LON-BCU incl. Room-Climate- Module with external push-button			
	LON-BCU incl. Room-Climate- Module without external push-button			

LON.RCD 20...

Art.-No. see below

LPT

PlugIn

**Room Control Device RCD2000**

Available in the design lines stainless steel, aluminum, LS990 and LS plus with maximal 16 push-buttons. Via a LNS-PlugIn individual functions can be set separately for each push-button: toggle, switch, control, scene panel, occupancy, control fan stages etc. and the switch-/control behavior.

A backlit display indicates the operation states of the room, the week day, the time and the temperature. Measurement of the room temperature via integrated temperature sensor.

Technical Data

- Power consumption:
min. 1,8 LPU (= 11 mA)
max. 2,7 LPU (= 18 mA)
- Protection type: IP 20
- Dimensions: 81 x 152 mm (incl. frame)
- Installation: junction switch box Ø 60 mm

(Design frame not included in delivery)

Available type	Description	Type	Colour	Article number
	LON-Room control device complete with 6 push-buttons / 16 LED	LON.RCD ES 2021	Stainless steel	131 05 400
		LON.RCD AL 2021	Aluminium	131 05 410
		LON.RCD 2021 WW	Alpine white	131 05 420
		LON.RCD 2021 LG	Light grey	131 05 430
		LON.RCD AL 2021 AN	Aluminium Anthracite	131 05 490
	LON-Room control device complete with 8 push-buttons / 16 LED	LON.RCD ES 2022	Stainless steel	131 05 401
		LON.RCD AL 2022	Aluminium	131 05 411
		LON.RCD 2022 WW	Alpine white	131 05 421
		LON.RCD 2022 LG	Light grey	131 05 431
		LON.RCD AL 2022 AN	Aluminium Anthracite	131 05 491
	LON-Room control device complete with 10 push-buttons / 16 LED	LON.RCD ES 2023	Stainless steel	131 05 402
		LON.RCD AL 2023	Aluminium	131 05 412
		LON.RCD 2023 WW	Alpine white	131 05 422
		LON.RCD 2023 LG	Light grey	131 05 432
		LON.RCD AL 2023 AN	Aluminium Anthracite	131 05 492
	LON-Room control device complete with 12 push-buttons / 16 LED	LON.RCD ES 2024	Stainless steel	131 05 403
		LON.RCD AL 2024	Aluminium	131 05 413
		LON.RCD 2024 WW	Alpine white	131 05 423
		LON.RCD 2024 LG	Light grey	131 05 433
		LON.RCD AL 2024 AN	Aluminium Anthracite	131 05 493
	LON-Room control device complete with 16 push-buttons / 16 LED	LON.RCD ES 2044	Stainless steel	131 05 405
		LON.RCD AL 2044	Aluminium	131 05 415
		LON.RCD 2044 WW	Alpine white	131 05 425
		LON.RCD 2044 LG	Light grey	131 05 435
		LON.RCD AL 2044 AN	Aluminium Anthracite	131 05 495

Art.-No. see below

LPT

PlugIn

**Design: Jung LS990**

Complete bundles of application module plus LON-bus coupling unit BA50 ULL.

Types in different colors / of different materials and/or in different designs on request.

The components can be mounted in cover frames of FD-design using the adapter frame FD981Z (see catalog Jung).

Technical Data

(Design frame not included in delivery)

(Design frame not included in delivery)

Available types	Description	Type	Colour	Article number
	LON-BCU incl. module with 2 push-buttons / 1 LED	LON.ES-T2.1	Stainless steel	131 05 017
		LON.AL-T2.1	Aluminium	131 05 034
		LON.LS-T2.1 WW	Alpine white	131 05 000
		LON.AL-T2.1 AN	Aluminium Anthracite	131 05 170
	LON-BCU incl. module with 2 push-buttons / 2 LEDD	LON.ES-T2.2	Stainless steel	131 05 018
		LON.AL-T2.2	Aluminium	131 05 037
		LON.LS-T2.2 WW	Alpine white	131 05 033
		LON.AL-T2.2 AN	Aluminium Anthracite	131 05 173
	LON-BCU incl. module with 4 push-buttons / 2 LED	LON.ES-T4.2	Stainless steel	131 05 035
		LON.AL-T4.2	Aluminium	131 05 035
		LON.LS-T4.2 WW	Alpine white	131 05 001
		LON.AL-T4.2 AN	Aluminium Anthracite	131 05 171
	LON-BCU incl. module with 4 push-buttons / 4 LED	LON.ES-T4.4	Stainless steel	131 05 020
		LON.AL-T4.4	Aluminium	131 05 038
		LON.LS-T4.4 WW	Alpine white	131 05 003
		LON.AL-T4.4 AN	Aluminium Anthracite	131 05 174
	LON-BCU incl. module with 8 push-buttons / 4 LED	LON.ES-T8.4	Stainless steel	131 05 007
		LON.AL-T8.4	Aluminium	131 05 036
		LON.LS-T8.4 WW	Alpine white	131 05 002
		LON.AL-T8.4 AN	Aluminium Anthracite	131 05 172
	LON-BCU incl. module with 8 push-buttons / 8 LED	LON.ES-T8.8	Stainless steel	131 05 008
		LON.AL-T8.8	Aluminium	131 05 039
		LON.LS-T8.8 WW	Alpine white	131 05 004
		LON.AL-T8.8 AN	Aluminium Anthracite	131 05 175
	LON-BCU incl. movement detector standard 180° / 1,10 m	LON.ES-PIR1.1S	Stainless steel	131 05 015
		LON.AL-PIR1.1S	Aluminium	131 05 052
		LON.LS-PIR1.1S WW	Alpine white	131 05 005
		LON.AL-PIR1.1S AN	Aluminium Anthracite	131 05 176
	LON-BCU incl. movement detector standard 180° / 2,20 m	LON.ES-PIR2.2S	Stainless steel	131 05 016
		LON.AL-PIR2.2S	Aluminium	131 05 053
		LON.LS-PIR2.2S WW	Alpine white	131 05 026
		LON.AL-PIR2.2S AN	Aluminium Anthracite	131 05 177
	LON-BCU incl. movement detector comfort (with manual operation) 180° / 1,10 m	LON.ES-PIR1.1K	Stainless steel	131 05 061
		LON.AL-PIR1.1K	Aluminium	131 05 063
		LON.LS-PIR1.1K WW	Alpine white	131 05 059
		LON.AL-PIR1.1K AN	Aluminium Anthracite	131 05 178
	LON-BCU incl. movement detector comfort (with manual operation) 180° / 2,20 m	LON.ES-PIR2.2K	Stainless steel	131 05 062
		LON.AL-PIR2.2K	Aluminium	131 05 064
		LON.LS-PIR2.2K WW	Alpine white	131 05 060
		LON.AL-PIR2.2K AN	Aluminium Anthracite	131 05 179
	LON-BCU incl. room temperature controller	LON.ES-RTR.04	Stainless steel	131 05 014
		LON.AL-RTR.04	Aluminium	131 05 040
		LON.LS-RTR.04 WW	Alpine white	131 05 013
		LON.AL-RTR.04 AN	Aluminium Anthracite	131 05 180
	LON-BCU incl. RoomClimate-Module with external push-button module	RCM 824.00 J-ES	Stainless steel	131 05 524
		RCM 824.00 J-AL	Aluminium	131 05 634
		RCM 824.00 J-LS WW	Alpine white	131 05 514
		RCM 824.00 J-LS AL AN	Aluminium Anthracite	on demand
	LON-BCU incl. RoomClimate-Module without external push-button module	RCM 820.00 J-ES	Stainless steel	131 05 520
		RCM 820.00 J-AL	Aluminium	131 05 630
		RCM 820.00 J-LS WW	Alpine white	131 05 510
		RCM 820.00 J-LS AL AN	Aluminium Anthracite	on demand





I/O-components

In the section below we listed for you all components which provide (actuators) or detect and evaluate (sensors) digital or analog signals via terminals, by radio or infrared. Many of these components have a modular structure. To make handling easier, we combined some representative combinations under one article number as a set. The assigned applications are described in a library of functions. Of course, within the **e2i**-system nearly all combinations are possible. You can find more details in the manual. You can download it at www.elka.de. The subject DALI is also becoming more and more important. Here, from four groups to 64 groups, we offer a wide range for most different applications.

PIR-K 360.5 ULL	Art.-No. 131 01 000	LPT		PlugIn	
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**Occupancy Sensor**

Complete bundle with LON-bus coupling unit BA50 ULL.
 3 operation modes: occupancy detection (operation mode: occupancy sensor), movement detection in interior rooms (operation mode: movement detector), alarm device.
 In up to two operation modes two output channels are available each which are separately parameterizable.
 The brightness measured within the integrated light sensor is available for further functions, as e. g. daylight-depending control on the network.

Technical Data

- Module for bus coupling unit Type BA50 ULL (included in delivery)
- Detection angle: 360°
- Detection levels: 6
- Range at installation height of 2,5 m: Ø 5 m measured at h = approx. 0,8 m Ø 8 m (floor)
- Protection type: IP 20
- Dimensions: Ø 104 mm x 40 mm
- Installation: Junction switch box Ø 60 mm
- Color: pure white (others on request)

e2i.PIR-K 360.5	Art.-No. 141 01 000	e2i			new
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**e2i-Occupancy sensor**

Extension set for LON- alternatively IP-controller with e2i-interface (e.g. SmartSensor, BC10 RLF, AC101 RLF, AC800 RIE) consisting of e2i-bus coupling unit and occupancy sensor.
 Three operation modes:
 • Occupancy detection (operation mode: occupancy sensor),
 • Movement detection in interior rooms (operation mode: movement detector)
 • alarm device.

Light depending and light independent operations can be generated.

Available: May 2006

Technical Data

- Supply voltage: via system bus of e2i-controller
- Power consumption: 6 e2i-bus loads
- Detection angle: 360°
- Detection levels: 6
- Range at installation height of = 2,5 m: Ø 5 m measured at h = approx. 0,8 m Ø 8 m (floor)
- Protection type: IP 20
- Dimensions sensor: Ø 104 mm x 40 mm
- Mounting: Junction switch box Ø 60 mm
- Color: pure white (others on request)

AP-PIR	Art.-No. 130 01 900				
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**Housing for occupancy sensor (surface-mounting)**

Housing (surface-mounting) for LON-occupancy sensor type PIR-K 360.5 ULL. Cable implementation is possible from the bottom and the side.

Technical Data

- Dimensions: Ø 103 mm x 45 mm
- Color: polar white (similar to RAL 9010)

LS-PIR.2

Art.-No. 132 01 450

FTT

PlugIn

new

**Multisensor-System**

For administration of rooms regarding occupancy to generate related functions like switching, dimming or influence the room climate. Up to 6 sensors can be operated at one LON node. The occupancy (= light independent) and light signals are available in the LON network on demand. They also can be linked logically using an internal functional library. This allows building groups of individual sensors for e.g. areas in bigger offices.

Included in this delivery unit:
LON-controller BC10 RLF
2 x Occupancy sensors e2i

Available May 2006

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- Power consumption: 8,5 W (at 6 sensors)
- Wiring length: max. 50 m (Sum of all wire sections)
- Max. number e2i-occupancy sensors: 6

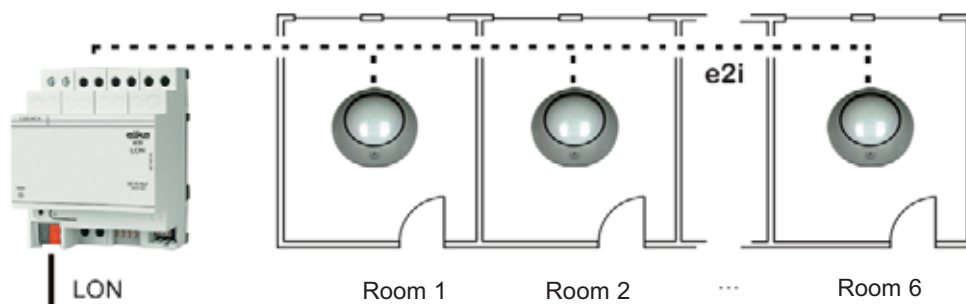
Each occupancy sensor

- Detection angle: 360°
- Detection levels: 6
- Range at installation height of = 2,5 m
Ø 5 m measured at h = approx. 0,8 m
Ø 8 m (floor)
- Protection type: IP 20
- Dimensions sensor: Ø 104 mm x 40 mm
- Mounting: Junction switch box Ø 60 mm
- Color: pure white (others on request)

LON-Controller

- Dimensions: 4 TE/70 mm (LON-Controller for flush mounting on request)
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022

Extension sensor for Multisensor-System
e2i.PIR-K 360.5 Art.-Nr.: 141 01 000
(Technical data see e2i-occupancy sensor
Order-No. 141 01 000)



TS6.2-DC ULF

Art.-No. 130 01 301

FTT

24 V DC

**Digital Input-/Output Module 6DI/2DO flush-mounting**

The Digital Input-/Output Module TS6.2 ULF for flush-mounting enables using the standard push-buttons (potential-free contacts) within a LON-network.

Six inputs and two outputs. Depending on the application, a switching-, dimming- or sunblind control-command can be generated.

Technical Data

- Supply voltage: 24 V DC
- Digital inputs: 6
- Digital outputs: 2
- Protection type: IP 20
- Dimensions: 50 x 50 x 20 mm
- Installation: Junction switch box Ø 60 mm

LS-DI...

Art.-No. see below

FTT

230 V AC

PlugIn

new

**Digital input n-Channel 230 V AC**

Multi-channel digital input. Setting per channel: kind of contact, debounce time and timing. Variable network interface. Software functions like scene, logic, timer. Other configurations can be arranged by customer.

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- Power consumption: 8,5 W (at 6 sensors)
- Number of inputs: 4
Potential-free (supplied externally)
- Nominal voltage: 230 V AC $\pm$ 10 %
- Input current: 2 mA
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022

Type	Description	width [TE] *(1 TE = 18 mm)	Article number
LS-DI 4.230	Digital input 4-fold 230 V AC	6	132 01 400
LS-DI 8.230	Digital input 8-fold 230 V AC	8	132 01 401
LS-DI 12.230	Digital input 12-fold 230 V AC	10	132 01 402
LS-DI 16.230	Digital input 16-fold 230 V AC	12	132 01 403
LS-DI 20.230	Digital input 20-fold 230 V AC	14	132 01 404
LS-DI 24.230	Digital input 24-fold 230 V AC	16	132 01 405

* A distribution to several DIN-rails is possible using the e2i-sytem bus extension EST460E (Art.-No. 140 01 901).

LS-DI...

Art.-No. see below

FTT

24 V AC / DC

PlugIn

new

**Digital input n-Channel 24 V AC/DC**

Multi-channel digital input. Setting per channel: kind of contact, debounce time and timing. Variable network interface. Software functions like scene, logic, timer. Other configurations can be arranged by customer.

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- Power consumption: 8,5 W (at 6 sensors)
- Number of inputs: 4
Potential-free (supplied externally)
- Nominal voltage: 24 V AC/DC
(7,5...26 V AC/DC)
- Input current: 2 mA
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022

Type	Description	width [TE] *(1 TE = 18 mm)	Article number
LS-DI 4.24	Digital input 4-fold 24 V AC/DC	6	132 01 406
LS-DI 8.24	Digital input 8-fold 24 V AC/DC	8	132 01 407
LS-DI 12.24	Digital input 12-fold 24 V AC/DC	10	132 01 408
LS-DI 16.24	Digital input 16-fold 24 V AC/DC	12	132 01 409
LS-DI 20.24	Digital input 20-fold 24 V AC/DC	14	132 01 410
LS-DI 24.24	Digital input 24-fold 24 V AC/DC	16	132 01 411

* A distribution to several DIN-rails is possible using the e2i-sytem bus extension EST460E (Art.-No. 140 01 901).

LS-AI...

Art.-No. see below

FTT

230 V / 24 V AC

PlugIn

new

**Analog input n-Channel Voltage / Current**

Multi-channel analog input for interpretation of sensors with current- or voltage outputs. Supply of sensors provided by module. Current input are monitored regarding broken wire. Variable network interface. Software functions like threshold value, logic, timer. Other configurations can be arranged by customer.

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- Power consumption: 8,5 W
- Inputs
- External supply Voltage: 24 V AC $\pm$ 15 %
- Power consumption: max. 4 VA
- Voltage: 0...1 V, 0...10 V (DC),
- Impedance: approx. 18 kW
- Current: 0...20 mA, 4...20 mA,
- Impedance: approx. 100 W
- A/D-conversion: 14 bit
- Supply of sensors: 24 V DC max. 100 mA
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022

Type	Description	width [TE] * (1 TE = 18 mm)	Article number
LS-AI 4UI	Analog input 4-fold voltage / current	8	132 01 420
LS-AI 8UI	Analog input 8-fold voltage / current	12	132 01 421
LS-AI 12UI	Analog input 12-fold voltage / current	16	132 01 422
LS-AI 16UI	Analog input 16-fold voltage / current	20	132 01 423

* A distribution to several DIN-rails is possible using the e2i-sytem bus extension EST460E (Art.-No. 140 01 901).

LS-WS...

Art.-No. see below

FTT

230 V / 24 V AC

PlugIn

new

**Weather station**

Weather station for measurement of rain, twilight and 3-fold brightness (dependent on direction). Build-in heater prevents condensation (doesn't prevent from freezing in frosty environment). Supply of sensors provided by module. Version with added analog input module allows the connection of further external sensors with current- or voltage output like e.g. sensor for outside temperature. Variable network interface. Software functions like threshold value, logic, timer. Other configurations can be arranged by customer.

Included in this delivery unit:
LON-controller BC10 RLF
e2i-Combi sensor
Power supply

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- Power consumption: 8,5 W
- Sensors: 6
- Supply voltage: 24 V AC / DC $\pm$ 15%
- Power consumption: max. 14,4 VA
- Wind speed: 1-40 m/s $\pm$ 0,5 m/s
- Resolution: 0,1 m/s
- Precipitation (1 Bit)
- Brightness (3-fach): 0-100 klx $\pm$ 10% v.E.
- Dependent on direction (east, south, west)
- Resolution: 1klx
- Spectral range: 700-1050 nm
- Twilight: 0...674 lx
- Resolution: 10 Bit
- Spectral area: 700-1050 nm
- Temperature range: -40°C – +60°C (ice free)
- Combi sensor
- Protection type: IP65 in functional position
- Mounting: wall- or mast mounting
- Dimensions: (Ø x H): 130 mm x 335 mm
- Control unit
- Protection type: IP 20
- Analog inputs: 4 (only at Type LS-WS+4)
- Voltage: 0...1 V, 0...10 V (DC),
- Impedance: approx. 18 kW
- Current: 0...20 mA, 4...20 mA,
- Impedance: approx. 100 W
- A/D-conversion: 14 bit
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022

Type	Description	width [TE] (1 TE = 18 mm)	Article number
LS-WS	Weather station	4	132 01 430
LS-WS+4	Weather station incl. 4 Analog inputs	8	132 01 431

LS-RF...

Art.-No. 132 01 440

FTT

PlugIn

new

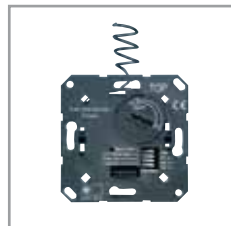
**Radio Receiver**

Component for interpretation of instafunk-Components in LON networks. Available transmitters: Digital I/O-Module (230 V AC or low voltage), Push-button sensors from the companies Berker, Gira or Jung in combination with radio-controlled wall-mounted transmitters or as flat wall transmitters, Hand-held transmitters. Receiver designed in installation housing to be mounted at ceiling, false floor etc. Controller designed in DIN-rail housing to be mounted in cabinets or installation box. Software functions like scene, logic, timer. Other configurations can be arranged by customer.

Included in this delivery unit:
LON-controller BC10 RLF
e2i-Radio Receiver Module

Technical Data

- Supply voltage: 230 V AC $\pm$ 10%
- Power consumption: 8,5 W
- Radio system: instafunk
- Frequency: 433,42 MHz
- Modulation: Amplitude Shift Keying
- Number of applicable transmitters: 12+1
- Transmission range for radio control: depending on the transmitter 30 m / 100 m (free field, see instafunk-transmitter), reduced transmission range in buildings depending on the constructional condition
- Dimensions receiver: 105 x 50 x 29 mm
- Dimensions LON-controller: 4 TE / 70 mm
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022



**instafunk-transmitter,
instafunk-Digital input modules and
instafunk-hand-held transmitters**

see S. 64

DIM 4 RLF	Art.-No. 130 01 250	FTT	230 V AC	PlugIn	
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**DALI-Controller DIM 4 RLF**

Controller to control and supply DALI-devices.
State control of all connected DALI-devices.
Monitoring of all illuminants (if supported by electronic ballasts).

Functions: time function, logic assignment, prioritization, constant light control, scene control, behavior in case of voltage failure/-return.

LON-objects on the device: Lamp Actuator (3040) (4x), Constant Light Controller (3050) (4x) and Scene Controller (3251) (4x).

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- DALI: 64 devices / max. 4 groups
- DALI-Supply voltage: by controller
- Manual control
- Status-LED
- Protection type: IP 20
- Assembly width: 6 TE / approx. 105 mm
- Mounting: DIN-rail DIN EN 50022

DIM 8 RLF	Art.-No. 130 01 251	FTT	230 V AC	PlugIn	
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**DALI-Controller DIM 8 RLF**

Controller to control and supply DALI-devices.
State control of all connected DALI-devices.
Monitoring of all illuminants (if supported by electronic ballasts).

Functions: time function, logic assignment, prioritization, constant light control, scene control, behavior in case of voltage failure/-return.

LON-objects on the device: Lamp Actuator (3040) (8x), Constant Light Controller (3050) (4x) and Scene Controller (3251) (8x).

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- DALI: 64 devices / max. 8 groups
- DALI-Supply voltage: by controller
- Manual control
- Status-LED
- Protection type: IP 20
- Assembly width: 6 TE / approx. 105 mm
- Mounting: DIN-rail DIN EN 50022

DIM 16 RLF	Art.-No. 130 01 252	FTT	230 V AC	PlugIn	
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**DALI-Controller DIM 16 RLF**

Controller to control and supply DALI-devices.
State control of all connected DALI-devices.
Monitoring of all illuminants (if supported by electronic ballasts).

Functions: time function, logic assignment, prioritization, constant light control, scene control, behavior in case of voltage failure / -return.

LON-objects on the device: Lamp Actuator (3040) (16x), Constant Light Controller (3050) (1x).

Technical Data

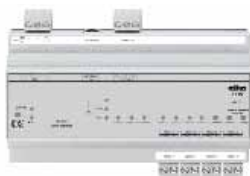
- Supply voltage: 230 V AC $\pm$ 10 %
- DALI: 64 devices / max. 16 groups
- DALI-Supply voltage: by controller
- Manual control
- Status-LED
- Protection type: IP 20
- Assembly width: 6 TE / approx. 105 mm
- Mounting: DIN-rail DIN EN 50022

DIM4.16 RLF

Art.-No. 130 01 254

IP/LON

new

**DALI-Controller 4 x 16 groups**

The DALI-controller DIM4.16 RLF has 4 independent DALI-outputs. 64 DALI ballasts can be connected to each output. They can be grouped in up to 16 groups. The controller can be connected to a LON network either via ANSI/EIA-852 or an TP/FT10-channel. An integrated web server allows to set the assignment of ballasts to a group.

- Monitoring of all lamps (if supported by ballast)
- Supervision of the status of all connected DALI-devices,
- Addressing of the DALI-devices via LNS-PlugIn
- Manual operation to directly control the DALI-devices
- Status-LED for diagnostics of malfunction and status.

Software functions: Timing functions, priority control, adjustable behavior at failure/return of supply voltage. Possibility for daylight-dependent control with LampActuator- (3020), Constant Light Controller-Objects (3050), Scheduler for sequence control and support of scene control in DALI-devices.

Available: October 2006

Technical Data

- Supply voltage: 12...35 V DC
12...24 V AC
- Power consumption: typ. 4 W
- DALI
 - Outputs: 4
 - Groups per output: 16
 - Ballast per output: 64
- Connection LON, DALI pluggable screw-terminals 0,6...2,5 mm² (solid)
- Connection IP: RJ-45 /100 Base-T
- EIA-232-Interface: Sub-D, 9-pol.
- Protection type: IP 20
- Assembly width: 9 TE / approx. 157 mm
- Mounting: DIN-rail DIN EN 50022

Please note

An external power supply is necessary for the supply of the DALI-devices (e.g. SV230-24.DALI, Order-No. 140 01 911) Please order on demand.

SV230-24.DALI

Art.-No. 140 01 911

new

**Power supply for DALI-Controller DIM4**

To supply a DALI-controller with 24 V DC as well as up to four DALI-channels 16 RLF 16 V DC, 115 mA per output). On demand the outputs 1+2 resp. 3+4 can be operated in parallel, so that two times 230 mA are available.

Available: October 2006

Technical Data

- Supply voltage: 230 V AC / 50 Hz
- Power consumption: max. 27 VA
- Output 24 V DC: max. 27 VA
- Voltage: 24 V DC $\pm$ 15 %
- Power: ca. 4 W
- DALI
 - Output: 4
 - Current per output: 115 mA
 - Parallel connection
 - Output 1+2: 230 mA
 - Output 3+4: 230 mA
- Connection pluggable screw-terminals 0,6...2,5 mm² (solid)
- Protection type: IP 20
- Assembly width: 4 TE / approx. 72 mm
- Mounting: DIN-rail DIN EN 50022

LS-DO...

Art.-No. see below

FTT

230 V AC

PlugIn

new

**Digital output n-Channel 230 V AC**

Multi-channel digital output with Triac-outputs; especially dedicated to control thermo-electric valve drive, magnetic valves, contactors and relays. ON-/OFF-mode and pulse-pause mode. Setting per channel: On-, Off- and staircase timer, behavior at power failure/-return. Variable network interface. Software functions like scene, logic, timer. Other configurations can be arranged by customer.

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- Outputs: Triac, 230 V AC
 - min. load current: 6 mA
 - max. load current: 350 mA@ 25°C
 - max. work cycle: 1 s
 - Switch-on period: 100% ED
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022

Type	Description	width [TE] * (1 TE = 18 mm)	Article number
LS-DO 4.230	Digital output 4-fold 230 V AC	8	132 01 210
LS-DO 8.230	Digital output 8-fold 230 V AC	12	132 01 211
LS-DO 12.230	Digital output 12-fold 230 V AC	16	132 01 212
LS-DO 16.230	Digital output 16-fold 230 V AC	20	132 01 213
LS-DO 20.230	Digital output 20-fold 230 V AC	24	132 01 214

* A distribution to several DIN-rails is possible using the e2i-sytem bus extension EST460E (Art.-No. 140 01 901).

LS-DO...

Art.-No. see below

FTT

24 V AC

PlugIn

new

**Digital output n-Channel 24 V AC**

Multi-channel digital output with Triac-outputs; especially dedicated to control thermo-electric valve drive, magnetic valves, contactors and relays. ON-/OFF-mode and pulse-pause mode. Setting per channel: On-, Off- and staircase timer, behavior at power failure /-return. Variable network interface. Software functions like scene, logic, timer. Other configurations can be arranged by customer.

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- Outputs: Triac, 24 V AC
 - min. load current: 6 mA
 - max. load current: 350 mA@ 25°C
 - max. work cycle: 1 s
 - Switch-on period: 100% ED
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022

Type	Description	width [TE] * (1 TE = 18 mm)	Article number
LS-DO 4.230	Digital output 4-fold 24 V AC	8	132 01 215
LS-DO 8.230	Digital output 8-fold 24 V AC	12	132 01 216
LS-DO 12.230	Digital output 12-fold 24 V AC	16	132 01 217
LS-DO 16.230	Digital output 16-fold 24 V AC	20	132 01 218
LS-DO 20.230	Digital output 20-fold 24 V AC	24	132 01 219

* A distribution to several DIN-rails is possible using the e2i-sytem bus extension EST460E (Art.-No. 140 01 901).

LS-SA n.16(H)

Art.-No. see below

FTT

230 V AC

PlugIn

new

**Relay actuator n-channel with bistable relay**

Multi-channel relay actuator with bistable relay; especially dedicated to control lamp loads and especially capacity loads (high-current-contact). Setting per channel: On-, Off- and staircase timer (possibility to re-trigger), behavior at power failure /-return. Variable network interface. Software functions like scene, logic, timer. Other configurations can be arranged by customer.

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- Power consumption: 8,5 W
- Relay-outputs: NO-contact, bistable μ 16A/ 230 V AC1
- Power: see AC101 RLF, S. 60
- Other loads: IP 20
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022

Type	Description	width [TE] * (1 TE = 18 mm)	Article number
LS-SA 6.16	Relay actuator 6-fold	8	132 01 200
LS-SA 12.16	Relay actuator 12-fold	12	132 01 201
LS-SA 18.16	Relay actuator 18-fold	16	132 01 202
LS-SA 24.16	Relay actuator 24-fold	20	132 01 203
LS-SA 6.16H	Relay actuator 6-fold, man. operation	10	132 01 204
LS-SA 12.16H	Relay actuator 12-fold, man. operation	14	132 01 205
LS-SA 18.16H	Relay actuator 18-fold, man. operation	18	132 01 206
LS-SA 24.16H	Relay actuator 24-fold, man. operation	22	132 01 207

* A distribution to several DIN-rails is possible using the e2i-sytem bus extension EST460E (Art.-No. 140 01 901).

LS-DA...

Art.-No. see below

FTT

230 V AC

PlugIn

new

**Universal-Dim actuator n-channel 350 W**

Multi-channel universal dimmer for dimming capacitive-ohmic or inductive-ohmic lamps (module detects autonomous the phasing). Short-cut and overload protected. No neutral conductor necessary. Each channel can be operated at different phases. Setting per channel: Memory-function (last output value), adjustment of dim-curve, On-, Off- and staircase timer (possibility to re-trigger), behavior at power failure /-return. Variable network interface. Software functions like scene, logic, timer. Other configurations can be arranged by customer.

Power output extendable via separate power extension ELZ 500U, Order-No. 516 620 00 (see S. 67).

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- Power consumption: 8,5 W
- Outputs: 230 V AC
- Power: 2 x 350 VA or 1 x 450 VA
- Switch-on period: 100% ED
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022

Type	Description	width [TE] * (1 TE = 18 mm)	Article number
LS-DA 2.350	Dim actuator 2-fold 350 W	8	132 01 230
LS-DA 4.350	Dim actuator 4-fold 350 W	12	132 01 231
LS-DA 6.350	Dim actuator 6-fold 350 W	16	132 01 232
LS-DA 8.350	Dim actuator 8-fold 350 W	20	132 01 233
LS-DA 10.350	Dim actuator 10-fold 350 W	24	132 01 234
LS-DA 2.350H	Dim actuator 2-fold 350 W, man. oper.	10	132 01 235
LS-DA 4.350H	Dim actuator 4-fold 350 W, man. oper.	14	132 01 236
LS-DA 6.350H	Dim actuator 6-fold 350 W, man. oper.	18	132 01 237
LS-DA 8.350H	Dim actuator 8-fold 350 W, man. oper.	22	132 01 238
LS-DA 10.350H	Dim actuator 10-fold 350 W, man. oper.	26	132 01 239

* A distribution to several DIN-rails is possible using the e2i-sytem bus extension EST460E (Art.-No. 140 01 901).

LS-JA...	Art.-No. see below	FTT	230 V AC	PlugIn	new
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Sunblind actuator n-channel 230 V AC (also DC-motos)

Multi-channel sunblind actuator to control motors for sunblinds. Internal interlock of the moving direction via contacts. Also control of DC-motors possible (half number of channels). Setting per channel: Position, behavior at power failure /-return. Variable network interface. Software functions like scene, logic, timer. Other configurations can be arranged by customer.

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- Power consumption: 8,5 W
- Outputs:
 - Nominal current: 6 A AC1
 - Nominal voltage: 250 V AC / 24 V DC
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022

Type	Description	width [TE] * (1 TE = 18 mm)	Article number
LS-JA 2.6AC	Sunblind actuator 2-fold 230 V AC	6	132 01 250
LS-JA 4.6AC	Sunblind actuator 4-fold 230 V AC	8	132 01 251
LS-JA 6.6AC	Sunblind actuator 6-fold 230 V AC	10	132 01 252
LS-JA 8.6AC	Sunblind actuator 8-fold 230 V AC	12	132 01 253
LS-JA 10.6AC	Sunblind actuator 10-fold 230 V AC	14	132 01 254
LS-JA 2.6ACH	Sunblind actuator 2-fold 230 V AC, man. oper.	8	132 01 255
LS-JA 4.6ACH	Sunblind actuator 4-fold 230 V AC, man. oper.	10	132 01 256
LS-JA 6.6ACH	Sunblind actuator 6-fold 230 V AC, man. oper.	12	132 01 257
LS-JA 8.6ACH	Sunblind actuator 8-fold 230 V AC, man. oper.	14	132 01 258
LS-JA 10.6ACH	Sunblind actuator 10-fold 230 V AC, man. oper.	16	132 01 259

* A distribution to several DIN-rails is possible using the e2i-sytem bus extension EST460E (Art.-No. 140 01 901).

LS-AO...	Art.-No. see below	FTT	230 V / 24 V AC	PlugIn	new
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Analog actuator n-channel voltage / current

Multi-channel analog actuator to control actuating elements with current- or voltage inputs. Supply of the elements by the module. Variable network interface. Software functions like threshold value, logic, timer. Other configurations can be arranged by customer.

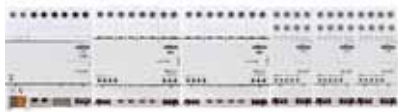
Technical Data

- Supply voltage: 230 V AC $\pm$ 10%
- Power consumption: 8,5 W
- Outputs:
 - External supply Voltage: 24 V AC $\pm$ 15%
 - Power consumption: max. 4 VA
 - Voltage: 0...1 V, 0...10 V (DC), burden $\leq$ 1 kW
 - Current: 0...20 mA, 4...20 mA, burden $\leq$ 100 W
- AD-conversion: 14 Bit
- Switch-on period: 100% ED
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022

Type	Description	width [TE] * (1 TE = 18 mm)	Article number
LS-AO 4UI	Analog actuator 4-fold voltage / current	8	132 01 260
LS-AO 8UI	Analog actuator 8-fold voltage / current	12	132 01 261
LS-AO 12UI	Analog actuator 12-fold voltage / current	16	132 01 262
LS-AO 16UI	Analog actuator 16-fold voltage / current	20	132 01 263

* A distribution to several DIN-rails is possible using the e2i-sytem bus extension EST460E (Art.-No. 140 01 901).

LS-IO 12.16/12x...	Art.-No. see below	FTT	230 V	PlugIn	new
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Combi-In-/output 12-channel with bistable relay

12-channel relay actuator with bistable relay and 12 digital inputs. Especially dedicated to control lamp loads and especially capacity loads (high-current-contact). Setting per channel: On-, Off- and staircase timer (possibility to re-trigger), behavior at power failure /-return and (inputs) kind of contact, debounce time and timing. Variable network interface. Software functions like scene, logic, timer. Other configurations can be arranged by customer.

Technical Data

- Supply voltage: 230 V AC ± 10 %
- Power consumption: 8,5 W
- Relay-outputs: NO-contact, bistable
- Power: μ 16A/ 230 V AC1
- Other loads: see AC101 RLF, S. 60

Type LS-IO 12.16/12.230

- Inputs: 4 x 230 V
- Nominal voltage: 230 V AC ± 10%
- Input current: 2 mA

Type LS-IO 12.16/12.24 V

- Inputs: 4 x 24 V
- Potential-free (supplied externally)
- Nominal voltage: 24 V AC ± 10%
- Input current: 2 mA

- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022

Type	Description	width [TE] * (1 TE = 18 mm)	Article number
LS-IO 12.16 /12.230	In-/output 12-fold 16 A, 12 Digital-input 230 V	18	132 01 300
LS-IO 12.16 /12.24	In-/output 12-fold 16 A, 12 Digital-input 24 V	18	132 01 301

* A distribution to several DIN-rails is possible using the e2i-sytem bus extension EST460E (Art.-Nr. 140 01 901).

MSA 120.2 ALL	Art.-No. 130 01 500	LPT		PlugIn	
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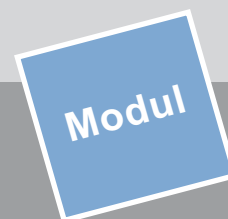
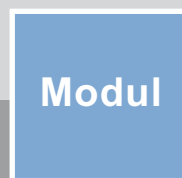
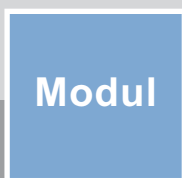
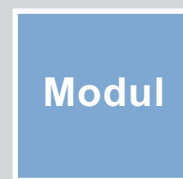
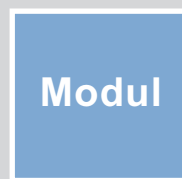
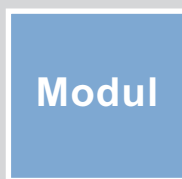
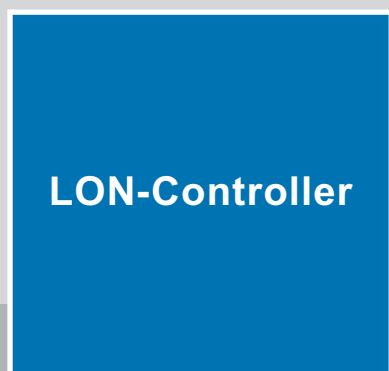
Motor-driven Valve Actuator MSA 120.2 ALL

The LON motor driven valve actuator MSA 120.2 ALL with two digital inputs to control e.g. a valve of a cooling unit, to guard the dew point and a window contact at the same time. Integrated PID-Controller (heat/cool in sequence) to realize especial economic solutions. Best adapted to the current types of valves of the well-known manufacturers (partly via adapter), high accuracy and a most compact type of construction.

Technical Data

- Digital inputs: 2 (non-isolated)
- Valve stroke: 1...4,2 mm
- Closing rate (valve): ± 11,5 mm
- Stem force: 120 N
(200 N on request)
- Running time: 25 s/mm
- Dimensions: 46 x 87 x 60 mm





e2i-Controller

- Application-Controller
AC101 RLF (130 01 601)
- Basic-Controller
BC10 RLF (130 01 621)
- Room-Controller
SmartSensor
- IP-Controller
AC800 RIE (150 01 600)

Extension-Modules

- Room operation panel
SmartSensor *light* e2i (141 04 000,
141 04 010, 141 04 020)
- e2i-Occupancy sensor (141 01 000)
- e2i-Bus Coupling Unit
(140 01 020 / 140 04 020)
- e2i-Digital Input 4-fold
4 x 230 V (150 01 600)
- e2i-Digital Input 4-fold
4 x 24 V (140 01 406)
- e2i-Manual Control Module
(141 01 010)
- e2i-Analog Input Module 4-fold
4 x (0..10 V bzw. 0/4..20 mA)
(140 01 410)
- e2i-Radio Receiver Module
for instafunk (140 01 430)
- e2i-Combi-Sensor (140 01 300)
- e2i-Digital Output Module 4-fold
4 x 230 V AC (140 01 240)
- e2i-Digital Output Module 4-fold
4 x 24 V AC (140 01 241)
- e2i-Relay Module 6-fold
6 x 16 A (140 01 201)
- e2i-Universal Dim Module 2-fold
2 x 350 W / 350 VA (140 01 220)
- e2i-Sunblind Module 2-fold
2 x 6 A (140 01 225)
- e2i-Analog Output Module 4-fold
4 x (0..10 V, 0/4..20 mA)
(140 01 210)

e2i – easy to integrate

The room automation system **e2i** based on LON meets all requirements for easy integration in

- architecture
- planning and
- project.

One unit in the **e2i**-system consists of a controller and additional modules to expand the controller functions.

The controller can be supplemented by hard- and software-modules without increasing the number of LON-nodes. This saves costs and increases clarity; the system can be maintained easier.

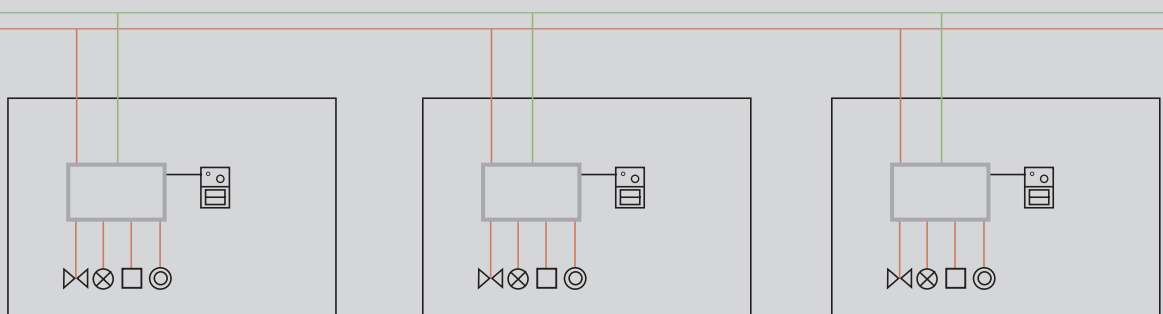
All LON-components are developed in accordance to ANSI/EIA-709 resp. EN 14908 and thus guarantee interoperability with products of other manufacturers.

Easy projecting

Configuration and parameterizing of the installation is effected via LNS-PlugIn. A pre-defined application can be selected from a library. By combining single function blocks project-specific applications are also possible.

LON

230 V AC



e2i-Modules	Type	Art.-No.	
Room operation panel SmartSensor <i>light</i> e2i new	LON.ITS30-RCP8.8LT ...	131 04 9xx	
e2i -Occupancy sensor new	e2i.PIR-K 360.5	141 01 000	
e2i -Bus Coupling Unit	EBA 1U EBA-G 1U	140 01 020 140 04 020	
e2i -Digital Input Module 4 x 230 V	EDI 4.230	140 01 405	
e2i -Digital Input Module 4 x 24 V	EDI 4.24	140 01 406	
e2i -Manual Control Module	EHB 5	140 01 010	
e2i -Analog Input Module 4-fold	EAI 4UI	140 01 410	
e2i -Radio Receiver Module for instafunk-components	ERF100 RX	140 01 430	
e2i -Kombi-Sensor (Wind, Precipitation, Brightness, DCF77)	EWS-Clima	140 01 300	
e2i -Digital Output Module 4-fold 230 V AC new	EDO 4.230	140 01 240	
e2i -Digital Output Module 4-fold 24 V AC new	EDO 4.24	140 01 241	
e2i -Relay Module	ERO 6.16	140 01 201	
e2i -Universal Dim Module	EDU 2.350	140 01 220	
e2i -Sunblind Module	EJA 2.6AC	140 01 225	
e2i -Analog Output Module	EAO 4UI	140 01 210	

	LON-Application-Controller	LON-Basic-Controller	LON-Room-Controller SmartSensor	IP-Controller
	AC101 RLF	BC10 RLF	RC10 ULF	AC800 RIE
				
Art.-No.	130 01 601	130 01 621	see chapter LON / Gira	150 01 600
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AC101 RLF

Art.-No. 130 01 601

FTT / e2i

230 V AC

PlugIn

**Application-Controller AC101 RLF**

Functionality which is needed in 80 % of all rooms:

- 2 light circuits (switched)
- 1 temperature controller (combined heating / cooling)
- 2 digital outputs (e.g. to control a thermo-electrical valve actuator)
- 2 digital inputs for contacts (e.g. dew point sensors, window contact, broken glass detector)

The functionality can be extended by adding e2i-modules via a low-cost local bus without increasing the amount of nodes.

Software functions as scene, logic, temperature controller.

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- No. of connect. modules: dep. on project
- Bus loads (source): 44
- Digital outputs: 2 (230 V AC / 10 W)
- Relay outputs: 2 (NO, bi-stable)
- Power: μ 16 A / 230 V AC1
- Filament lamp: 2500 W
- Halogen lamp: 230 V 2300 W
- LV-Halogen lamp: 1000 VA
- Fluorescent lamp to EVG:
 - T8: 58 W: 10 pcs.; 36 W: 16 pcs.; 18 W: 24 pcs.
 - T5: 80 W: 5 pcs.; 54 W: 10 pcs.; 28 W: 18 pcs.; 14 W: 12 pcs.
- Energy saving lamp 15 W: 30 pcs.; 13 W: 35 pcs.; 9 W: 40 pcs.
- Capacitive load: 105 μ F/16 A
- Switch-on current: 120 A / 100 ms
- Digital inputs: 2 (24 V AC / DC), ext. supplied
- Protection type: IP 20
- Assembly width: 6 TE / approx. 105 mm
- Mounting: DIN-rail DIN EN 50022

BC10 RLF

Art.-No. 130 01 621

FTT / e2i

230 V AC

PlugIn

**Basic-Controller BC10 RLF**

The basic controller BC10 RLF is designed to connect e2i-modules via a low-cost local sub-bus at only one LON-node.

Software functions as scene, logic, temperature controller.

Technical Data

- Supply voltage: 230 V AC $\pm$ 10 %
- Number of connectable modules: depending on project
- Bus loads (source): 44
- Protection type: IP 20
- Assembly width: 4 TE / approx. 70 mm
- Mounting: DIN-rail DIN EN 50022

RCP 733x ULF...

Art.-No. see chapter LON

FTT / e2i

24 V AC / DC

PlugIn

**Room Control Panel SmartSensor**

Room-oriented control- and operation unit consisting of a flush-mounting controller RC10 ULF and a design module with 1...4 rockers for direct control of the »everyday functions« (favorite functions). Backlighted LC-display to realize a clear menu structure. Operation via a backlighted navigation knob by turning / pushing. The number of rockers for direct control can be extended modularly by employing e2i-bus coupling units and the corresponding design push-button modules. A temperature sensor (PT1000 KI. A) to measure the room temperature is integrated. Variable network interface to adapt to project-specific conditions. Extendable by e2i-Radio Receiver Module for remote control via instafunk-components (transmitters only) as well as via SmartSensor *light e2i* for room operation of up to 3 further rooms. Further functions of the device: temperature controller, alarm system, timer. (Available types: see chapter LON)

Technical Data

- Supply voltage: 24 V AC / DC $\pm$ 10 %
- Number of connectable modules: depending on project
- Bus loads (source): 44
- Installation flush-mounting: dual junction switch box
- Installation hollow wall: dual junction switch box
- Installation concrete: BS2-universal box
- Protection type: IP 20
- Dimensions
 - Design module SmartSensor: 92 x 168 x 17 mm
 - Controller flush-mounting: 70,9 x 142 x 30 mm

(Design frame not required for this system)

e2i.ITS30-RCP8.8LT

Art.-No. see below

e2i

new

**Room operation panel SmartSensor *light* e2i**

Room operation panel consisting of e2i-ITS30-Interface and a design module with 4 rockers for direct operation. For operation at LON network a LON-controller with e2i-interface is needed (e.g. BC10 RLF or SmartSensor). Via the Display with backlight up to 12 operating functions are possible. Operation via backlit navigation knob by turning/pushing. Integrated temperature sensors to measure the room temperature.

Design frame not required for this system.

Technical Data

- Supply voltage: via system bus of e2i-controller
- Power consumption: 12 e2i-bus loads
- Installation flush-mounting: dual junction switch box
Installation hollow wall: dual junction switch box
Installation concrete: BS2-universal box
- Protection type: IP 20
- Dimensions
Design module SmartSensor: 92x168 x17mm
e2i-ITS30-Interface: 70,9 x 142 x 30 mm

Description	Type	Colour	Article number
SmartSensor <i>light</i> (8 push-buttons / 8 LED) incl. e2i-ITS30-Interface	e2i.ITS30-RCP8.8LT rwg	pure white glossy	141 04 000
	e2i.ITS30-RCP8.8LT an	Anthracite	141 04 010
	e2i.ITS30-RCP8.8LT al	Aluminium	141 04 020

SmartSensor *light* - Extensions

+



+



+



Controller

e2i-Extension Module

SmartSensor *light*: LON-Controller with e2i-Interface

- Economical solution through reduction of number of nodes
- Energie appointing simply more efficient:

One LON-node SmartSensor
+ up to three operation panels SmartSensor light e2i

= Operating functions for up to four rooms

- Economic ideal solution for one room:
The SmartSensor light e2i can also be operated at an application controller AC101 RLF.

e2i.PIR-K 360.5

Art.-No. 141 01 000

e2i

new

**e2i-Occupancy Sensor**

Complete bundle with LON-bus coupling unit BA50 ULL.
 3 operation modes: occupancy detection (operation mode: occupancy sensor), movement detection in interior rooms (operation mode: movement detector), alarm device.
 In up to two operation modes two output channels are available each which are separately parameterizable.
 The brightness measured within the integrated light sensor is available for further functions, as e. g. daylight-depending control on the network.

Technical Data

- Module for bus coupling unit
Type BA50 ULL (included in delivery)
- Detection angle: 360°
- Detection levels: 6
- Range at installation height of 2,5 m:
Ø 5 m measured at h = approx. 0,8 m
Ø 8 m (floor)
- Protection type: IP 20
- Dimensions: Ø 104 mm x 40 mm
- Installation: Junction switch box Ø 60 mm
- Color: pure white (others on request)

EBA 1U
EBA-G 1UArt.-No. 140 01 020
Art.-No. 140 04 020

e2i


e2i-Bus Coupling Unit flush-mounting
e2i-Bus Coupling Unit flush-mounting (Gira)

Connection to the LON-controller with e2i-interface (system bus) via a 4-wire bus cable. Topology: lines, trees or stars. Connection between system bus and a design module of the companies Berker, Gira or Jung via a 10-pole application interface.

EBA 1U: For design modules of Berker and Jung

EBA-G 1U: For design modules of Gira

Technical Data

- External supply: via system bus of e2i-controller
 - Power consumption: depending on the applied design module (see table)
- | Application module | Bus loads |
|-------------------------------------|-----------|
| EIB-Push-button 1-fold standard | 2 |
| EIB-Push-button 2-fold standard | 2 |
| EIB-Push-button 3-fold standard | 2 |
| EIB-Push-button 4-fold standard | 2 |
| RoomClimate-Module (RCM) | 4 |
| Passive-IR-Movement detector (Std.) | 2 |
| Push-button 1-fold SmartSensor | 4 |
| Push-button 2-fold SmartSensor | 4 |
| Push-button 3-fold SmartSensor | 4 |
| Push-button 4-fold SmartSensor | 4 |
- Protection type: IP 20
 - Dimensions: 51 x 51 x 32 mm
 - Installation: Junction switch box Ø 60 mm

EDI 4.230

Art.-No. 140 01 405

e2i

230 V AC

**e2i-Digital Input Module 4 x 230 V**

Connection to the LON-controller with e2i-interface via a system plug. The module disposes of 4 digital inputs of which the functionality can individually be adjusted.

Technical Data

- Supply: via system bus of e2i-controller
- Power consumption: 2 e2i-bus loads
- Digital inputs: 4
potential free (externally supplied)
- Nominal voltage: 230 V AC ± 10 % / 50...60 Hz
- Input current: 2 mA
- Protection type: IP 20
- Assembly width: 2 TE / 35 mm
- Mounting: DIN-rail DIN EN 50022

EDI 4.24

Art.-No. 140 01 406

e2i

24 V AC / DC

**e2i-Digital Input Module 4 x 24 V passiv**

Connection to the LON-controller with e2i-interface via a system plug. The module disposes of 4 passive digital inputs of which the functionality can be adjusted individually.

Technical Data

- Supply: via system bus of e2i-controller
- Power consumption: 2 e2i-bus loads
- Digital inputs: 4
potential free (externally supplied)
- Nominal voltage: 24 V UC
(7,5...26 V UC),
polarity protected
- Input current: 2 mA
- Protection type: IP 20
- Assembly width: 2 TE / 35 mm
- Mounting: DIN-rail DIN EN 50022

EHB 5

Art.-No. 140 01 010

e2i

**e2i-Manual Control Module**

Connection to the LON-controller with e2i-interface via a system plug. Module serves as manual control level for all actuators operated at the same controller.
Functions: ON / OFF / All OFF.

Technical Data

- Supply: via system bus of e2i-controller
- Power consumption: 2 e2i-bus loads
- Protection type: IP 20
- Assembly width: 2 TE / 35 mm
- Mounting: DIN-rail DIN EN 50022

EAI 4UI

Art.-No. 140 01 410

e2i

24 V AC

**e2i-Analog Input Module 4-fold**

Connection to the LON-controller with e2i-interface via a system plug. The module disposes of 4 analog current- or voltage inputs to which can be connected standard sensors, e.g. out of the ELKA-product range. Current inputs are monitored against broken wires. Supply of sensors out of the module.

Technical Data

- External supply
Voltage: 24 V AC $\pm$ 15 %
Power: max. 4 VA
- Power consumption: 6 e2i-bus loads
- Analog inputs: 4
- Input values per channel
Voltage: 0...1 V, 0...10 V (DC),
impedance approx. 18 kW
Current: 0...20 mA, 4...20 mA,
impedance approx. 100 Ω
- A/D-conversion: 14 bit
- Supply of sensors: 24 V DC max. 100 mA
- Protection type: IP 20
- Mounting: DIN-rail DIN EN 50022
- Assembly width: 4 TE / 70 mm

EWS-Clima	Art.-No. 140 01 300	e2i	24 V AC / DC		
					
e2i-Combi Sensor Connection to the LON-controller with e2i-interface (system bus) via a 4-wire system bus cable. Measuring of wind speed, precipitation, twilight and 3-fold (dependent from direction) brightness. Build-in-heater prevents condensation (doesn't prevent from freezing in frosty environment). Supply of sensors provided by module. Connection via a fixed 6-wire cable (10 m). Integrated DCF77-receiver with rotating antenna by 90°. Necessary for operation: Power supply Art.-No.: 140 01 924 for Combi Sensor and heater.					
Technical Data - External supply - Voltage: 24 V AC / DC $\pm 15\%$ - Power: max. 14,4 VA - Power consumption: 14 e2i-bus loads - Sensors: 6 - Wind speed: 1...40 m/s $\pm 0,5$ m/s - Resolution: 0,1 m/s - Precipitation (1 bit) - Brightness (3-fold): 0...110 klx $\pm 10\%$ v.E. dependent on the direction (east, south, west) - Resolution: 10 bit - Spectral range: 700...1050 nm - Twilight: 0...674 lx - Resolution: 10 bit - Spectral range: 700...1050 nm - Temperature range: -40 °C...+60 °C (ice free) - Protection type: IP 55 in functional position - Mounting: wall- or mast mounting - Dimensions (Ø x H): 130 mm x 200 mm					

ERF100 RX	Art.-No. 140 01 430	e2i	instafunk		
					
e2i-Radio Receiver Module for instafunk-Components Connection to the LON-controller with e2i-interface via a 4-wire system cable. Topology: line, star, ring. This module can integrate instafunk-transmitters into LON-networks and enables a remote control. Available transmitters: - Digital I/O-Module (230 V AC or low voltage) - Push-button sensors in combination with radio-controlled wall-mounted transmitters or as flat wall transmitters - Hand-held transmitters					
Technical Data - Supply: via system bus of LON-controller - Power consumption: 3 bus loads - Protection type: IP 20 - Dimensions: 105 x 50 x 29 mm - Radio system: instafunk - Frequency: 433,42 MHz - Modulation: ASK (Amplitude Shift Keying) - Number of applicable transmitters: 12+1 - Transmission range for radio control: depending on the transmitter 30 m / 100 m (free field, see instafunk-transmitter), reduced transmission range in buildings depending on the constructional condition					

instafunk-digital input module			Article number
	Universal transmitter IUS 2.230	- Requires a 230 V-power supply - Typically used as alternative for a conventional switch (renovation) - Disposes of two inputs and thus can support two switches / push-buttons - Also possible to use 230 V-supplied contacts (if supplied by the same phase conductor) - Transmission range: max. 100 m (free field) - Dimensions: approx. Ø 52 x 21 mm	5 7625 000 Purchase only at electric wholesalers
	Multifunction transmitter IMS 4	- Battery-buffered device (Lithium cell CR2032) - Analysis of up to 4 potential-free contacts - Polling voltage is provided by the multifunction transmitter - Transmission range: max. 100 m (free field) - Dimensions: 45 x 40 x 10 mm	5 7611 000 Purchase only at electric wholesalers

instafunk-hand-held transmitters

	Hand-held transmitter comfort IHK 3.8-K	• 3 groups; each group consists of 8 channels with 2 push-buttons each • Sum push-buttons • Batteries: 4 x 1,5 V Micro LR03 (AAA) (not included in delivery) • Dimensions: 192 x 53 x 22,5 mm • Transmission range: max. 100 m (free field)	5 7402 020 Purchase only at electric wholesalers
	Hand-held transmitter mini IHS 2-M	• 2 channels with 2 push-buttons each • Integrated fixing link • Battery-buffered device (Lithium cell CR2032) • Dimensions: 73 x 43 x 19 mm • Transmission range: max. 100 m (free field)	5 7403 001 Purchase only at electric wholesalers

Radio-controlled wall-mounted transmitter

	Use of standard push-button sensors of • Berker: 1..4-fold (depending on the design) • Gira: 1..3-fold (design TS2) • Jung: 1-, 2-, 4-fold (designs LS990, CD500, Stainless steel, Aluminium) • Transmission range: max. 30 m (free field) (Push-button sensors are not included in the delivery)	Berker: 2764
		Gira: 0511 00
		Jung: 40 FW
		Purchase only at electric wholesalers

Wall transmitter flat

	Flat installation on walls (no junction switch box required for installation) • Berker: 1..4-fold (depending on the design) • Gira: 1..3-fold (design TS2) • Jung: 1-, 2-, 4-fold (designs LS990, CD500, Stainless steel, Aluminium) • Battery-buffered device (Lithium cell CR2032) • Transmission range: max. 30 m (free field)	Design-dependent; see details in the catalogs of the companies Berker, Gira and Jung
		Purchase only at electric wholesalers

ERO 6.16

Art.-No. 140 01 201

e2i

230 V AC

**e2i-Relay Module ERO 6.16**

Connection to the LON-controller with e2i-interface via a system plug. Especially suited for controlling lamp loads and capacitive loads (high voltage contact). At each channel triggerable switch-on-, switch-off- and stairway-timer can be realised.

Technical Data

- Supply: via system bus of **e2i-controller**
- Power consumption: 5 **e2i-bus** loads
- Relay outputs: 6 (NO, bi-stable)
Power: $\mu 16$ A / 230 V AC1
other loads see AC101 RLF
- Protection type: IP 20
- Assembly width: 4 TE / 70 mm
- Mounting: DIN-rail DIN EN 50022

EDO 4.230

Art.-No. 140 01 240

e2i

230 V AC

new

**e2i-Digital output 4-fold 230 V AC**

Connection to an LON- alternatively IP-controller with e2i-Interface via a system plug. The module is used to control different kind of control actuating elements like thermo-electric valve drive, magnetic valves, contactors and relays.

Technical Data

- External supply: 230 V AC
- Power consumption: 9 **e2i-bus** loads
- Digital outputs: 4
- Output values per channel:
Minimum load current: 6 mA
Maximum load current: 350 mA@ 25°C
Output voltage: 230 V AC
Max. work cycle: 1 s
Switch-on period: 100% ED
Max. cable length: max. 100 m
Kind of loads: thermo-electric valve drive, 3-point-drives, contactors, magnetic valves
- Protection type: IP 20
- Assembly width: 4 TE / 70 mm
- Mounting: DIN-rail DIN EN 50022

EDO 4.24

Art.-No. 140 01 241

e2i

24 V AC

new

**e2i-Digital output 4-fold 24 V AC**

Connection to an LON- alternatively IP-controller with e2i-Interface via a system plug. The module is used to control different kind of control actuating elements like thermo-electric valve drive, magnetic valves, contactors and relays

Technical Data

- External supply: 24 V AC
- Power consumption: 9 **e2i-bus** loads
- Digital outputs: 4
- Output values per channel:
Minimum load current: 6 mA
Maximum load current: 350 mA@ 25°C
Output voltage: 24 V AC
Max. work cycle: 1 s
Switch-on period: 100% ED
Max. cable length: max. 100 m
Kind of loads: thermo-electric valve drive, 3-point-drives, contactors, magnetic valves
- Protection type: IP 20
- Assembly width: 4 TE / 70 mm
- Mounting: DIN-rail DIN EN 50022

EDU 2.350

Art.-No. 140 01 220

e2i

230 V AC

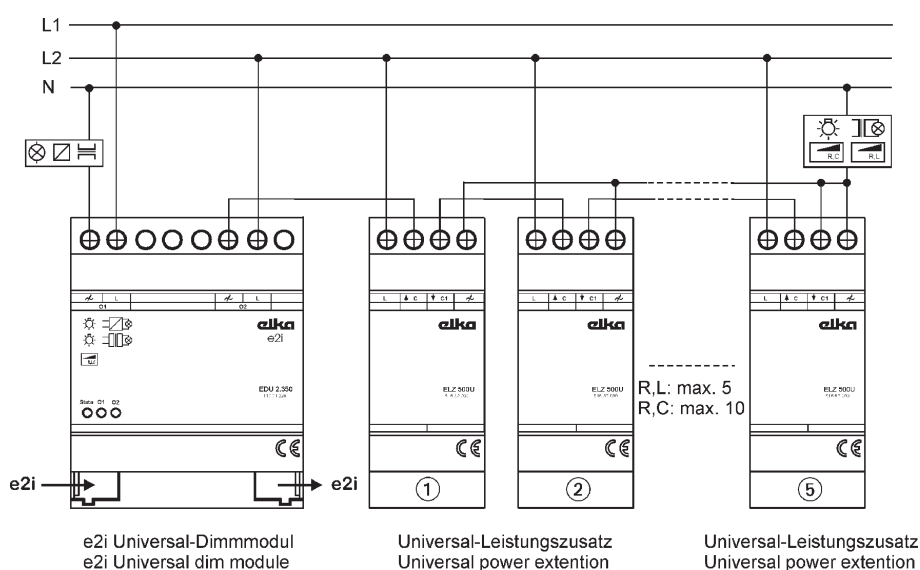
**e2i-Universal Dim Module****2 x 350 VA / 1 x 450 VA**

Connection to the LON-Controller with e2i-interface via an e2i-system plug. For dimming capacitive or inductive lamps (module recognizes autonomously if phase-cut on or phase-cut off has to be used). Short-circuit proof and overload protection. No neutral-wire-connection required. Each channel can be operated at a different phase conductor.

Additional characteristics: Brightness storage, scenes, switch-on/switch-off timer, stairway light function, adjustment of dimming curve.

Technical Data

- Supply voltage: 230 V AC $\pm 10\%$
- Power consumption: 2 e2i-bus loads
- Outputs: 2 (1)
- Power: 2 x 350 VA or 1 x 450 VA (extendable via power extension) max. 100 m
- Cable length: max. 100 m
- Protection type: IP 20
- Assembly width: 4 TE / 70 mm
- Mounting: DIN-rail DIN EN 50022



ELZ 500U

Art.-No. 516 62 000

230 V AC

new

**e2i-Universal- power extension**

Used to extent the output power of an e2i-universal dim module EDU 2.350 (other dimmer are not admitted). The control of the power extension is effected solely by the upstreamed dimmer. The connected loads are supplied via a common load conductor and is evenly spread to the dimmer and the load extension.

Note:

A total load bigger than 1 kW is allowed only for professional range. Mixed loads composed of the loads specified (capacitive loads not together with inductive loads). If mixed loads are used with conventional transformers, the share of resistive loads (incandescent, 230 V halogen lamps) must not exceed 50 %.

Technical Data

- Supply voltage: 230 V AC
- Power consumption: 5 W
- Minimum load: 200 W / VA
- Phase-cut on (ohmic / capacitive): Power output: 500 W / VA lockable to EDU 2.350: max. 10
- Phase-cut off (ohmic / inductive): Power output: 350 W / VA (1-channel) 250 W / VA (2-channel) lockable to EDU 2.350: max. 5
- Protection type: IP 20
- Assembly width: 2 TE / 35 mm
- Mounting: DIN-rail DIN EN 50022

EJA 2.6AC

Art.-No. 140 01 225

e2i

230 V AC

**e2i-Sunblind Module 2-fold**

Connection to the LON-controller with e2i-interface via a system plug. For control of actuators for sunblind controls. Internal locking of the direction of motion via contacts.

Control of one group of DC-motors is also possible.

Technical Data

- Supply: via system bus of e2i-controller
- Power consumption: 6 e2i-bus loads
- Outputs: 2
- Nominal voltage: 230 V AC $\pm 10\%$ / 50...60 Hz
- Protection type: IP 20
- Assembly width: 2 TE / 35 mm
- Mounting: DIN-rail DIN EN 50022

EAO 4UI

Art.-No. 140 01 210

e2i

24 V AC

**e2i-Analog Output Module 4-fold**

Connection to the LON-controller with e2i-interface via a system plug. The module disposes of 4 analog current- or voltage outputs.

Technical Data

- External supply
 - Voltage: 24 V AC $\pm 15\%$
 - Power: max. 4 VA
- Power consumption: 8 e2i-bus loads
- Analog outputs: 4
- Output values per channel
 - Voltage: 0...1 V, 0...10 V (DC), burden $\leq 1\text{ kW}$
 - Current: 0...20 mA, 4...20 mA, burden $\leq 100\text{ W}$
- A/D-conversion: 14 bit
- Supply of sensors: 24 V DC max. 100 mA (sum)
- Protection type: IP 20
- Assembly width: 4 TE / 70 mm
- Mounting: DIN-rail DIN EN 50022

SV230-24.1 AC

Art.-No. 110 01 924

230 V AC

**e2i-Power Supply 24 V AC / 1 A**

Power supply SV230-24.1 AC to supply e.g. EIB-analog input and output, EIB-weather station and LON-controller RC10 ULF.

Furthermore, it can supply sensors as WS10W, WS10R or the combi-sensors WS e2i and EWS-Climate and their heatings. The product completely replaces the heating transformer WS10 HT.

Technical Data

- Primary voltage: 230 V AC $\pm 10\%$
- Secondary voltage: 24 V AC $\pm 15\%$
- Max. output current (typ.): 1 A
- Short circuit protection by thermo fuse
- Protection type: IP 20
- Assembly width: 4 TE / 70 mm
- Mounting: DIN-rail DIN EN 50022

SV230-24.1500DC

Art.-No. 140 01 910

230 V AC

**e2i-Power Supply 24 V AC / DC / 1,5 A**

The primary switched power supply SV230-24.1500DC disposes of a wide range input and thus can be employed worldwide. The device produces 24 V DC / 1,5 A at his output. It has a power reserve of up to 100 % and therefore assures operation even in complex networks. Large capacitors ensure mains buffering of more than 20 ms (120 V) or 100 ms (230 V). The flat design enables installation in every small distribution board.

Secondary switchable imperparallel to gain redundancy or to extend output power (current).

Technical Data

- Nominal input voltage: 100...240 V AC
- Input voltage range: 85...264 V AC / 110...350 V DC (at 95...110 V DC, 20 % derating)
- Current consumption (at nom. values): 0,4...0,8 A
- Mains buffering at nominal load: > 20 ms (120 V AC) > 100 ms (230 V AC)
- Nominal output voltage (at convection cooling): 24 V DC $\pm$ 1 %
- Nominal output current (up to 55 °C): 1,5 A
- Max. output current (typ.): 4,5 A
- Nominal load: max. approx. 44 W
- Can be connected in parallel: to increase redundancy and power
- Protection type: IP 20
- Assembly width: 4 TE / 71 mm
- Mounting: DIN-rail DIN EN 50022

EST1

Art.-No. 140 01 900

10 pcs. per packing unit (Art.-No. 140 01 900)

**e2i-System plug**

For the connection of an e2i-DIN-rail-module to another e2i-DIN-rail module or to a LON-controller with e2i-interface.

The e2i System plug is included in the scope of delivery of each DIN-rail module and is also available as accessories.

EST460E

Art.-No. 140 01 901

1 pcs. per packing unit (Art.-No. 140 01 901)

**e2i-System bus extention**

For the connection of an e2i-DIN-rail-module to another e2i-DIN-rail-module or to a LON-controller with e2i-interface which are mounted on a DIN-rail close-by.

Technical Data

- Length: 460 mm

T

TECHNISCHE
UNIVERSITÄT

Deutsche Telekom Laboratories
Wir machen aus Ideen Zukunft.

In some projects already today classical room functions like illumination, sun protection, heating and cooling incl. their operation are integrated in IP-based administration systems.

IP

Already today in residential and functional buildings often an IP-infrastructure can be found. Linking of PCs, audio/video components and telephones via internet gains more and more acceptance. Already today projects exist in which nearly all operation and display functions are carried out via PCs or IP-phones, parallel to the classical room operation. Here, for operation functions standard software programmes like a web browser are used which saves additional user licences. Office structures are also changing: the employees do no longer have a personal, firm workplace, but are assigned a temporary workplace depending on the work to be done. This makes it necessary to configure the PC configuration and the settings regarding phone and work environment person-related.

All this is possible today by integration of the local automation components in a corresponding IP-based administration system which are assigned to a user by booking a room or workplace. These components are, in addition to PC and phone, also classical functions like illumination, sun protection and heating/cooling.

AC800 RIE

Art.-No. 150 01 600

IP / e2i

new



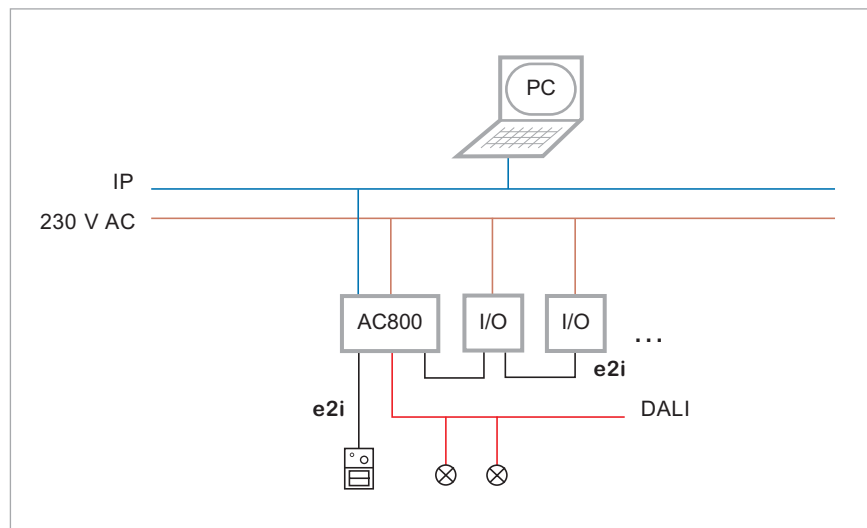
IP-Application-Controller

The application controller can be integrated in an IP-based building automation system, which administrates rooms and several working places. The controller enables the control of up to 16 DALI-devices in up to 4 groups at one DALI-channel. The I/O-configuration can be extended by connection of e2i-modules like operating devices, actuators and sensors. Integrated software functions like logic, scene, PID-controller are also available. Via the tool MidiSys-IP the administration of the controller is done. It also allows to define data point, which are handled via the integrated Web-Server. The binding between different IP-controllers AC800 RIE respectively to other IP-functions is done via an IP-binding tool.

Available: August 2006

Technical Data

- Supply voltage: 230 V AC
 - Power consumption: 8,5 W
 - Number of connectable modules: depending on project (max. 6)
 - Busloads (Source): 44
- DALI:
- Groups: 4
 - Devices: 16
 - Connection Ethernet: RJ-45 Stecker
 - Protection type: IP 20
 - Assembly width: 6 TE / ca. 105 mm
 - Mounting: DIN-rail DIN EN 50022



The sensors of ELKA-Elektronik GmbH are especially aligned to the economic solution of climatic tasks.



Sensorics

Facing rising demands regarding the room climate of modern buildings, an increasing number of sensors is employed in building automation. Demand is provoked by changed legislation, wishes of the client or the use of new technologies as e.g. clean room technology.

The sensors of ELKA-Elektronik GmbH are especially aligned to the economic solution of climatic tasks.

As well as the conventional analog and binary signals, the ELKA sensors can easily be integrated in the bus systems LON and KNX/EIB.

Often these sensors are pre-configured and can be called up via the weather stations of leading manufacturers of KNX/EIB components.

On condition of adequate quantities they can also directly be equipped with bus coupling for OEM-business. Please contact us for information.

Sensors	Type	Art.-No.	
Combi-Sensor (Wind, Precipitation, Twilight, Brightness, DCF77)	EWS-Clima	140 01 300	
Brightness	WS10 H	110 01 302	
Twilight	WS10 D	110 01 303	
Rain / Precipitation	WS10 R	110 01 204	
Temperature	WS10 T	110 01 305	
Wind Speed	WS10 W	110 01 306	
Humidity / Temperature	FTR23	116 22 300	
Air Quality	LQR13	110 01 201	
Differential Pressure	DTP	160 2...	
Differential Pressure	DTW	160 3...	

Basic-Controller	Application-Controller	Room-Controller SmartSensor	Analog-Input
BC10 RLF LON  Art.-No. 130 01 621	AC101 RLF LON  Art.-No. 130 01 601	RC10 ULF LON  see chapter LON / Gira	EAI 4UI e2i / LON  Art.-No. 140 01 410
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EWS-Clima

Art.-No. 140 01 300

e2i

24 V AC / DC

**e2i-Combi Sensor**

Connection to the LON-controller with e2i-interface (system bus) via a 4-wire system bus cable. Measuring of wind speed, precipitation, twilight and 3-fold (dependent from direction) brightness.
Build-in-heater prevents condensation (doesn't prevent from freezing in frosty environment). Supply of sensors provided by module.
Connection via a fixed 6-wire cable (10 m). Integrated DCF77-receiver with rotating antenna by 90°.

Necessary for operation:

Power supply Art.-No.: 140 01 924 for Combi Sensor and heater.

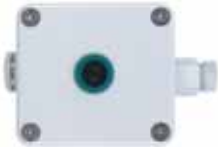
Technical Data

- External supply
 - Voltage: 24 V AC / DC $\pm 15\%$
 - Power: max. 14,4 VA
- Power consumption: 14 e2i-bus loads
- Sensors: 6
 - Wind speed: 1...40 m/s $\pm 0,5$ m/s
 - Resolution: 0,1 m/s
 - Precipitation (1 bit)
 - Brightness (3-fold): 0...110 klx $\pm 10\%$ v.E. dependent on the direction (east, south, west)
 - Resolution: 10 bit
 - Spectral range: 700...1050 nm
 - Twilight: 0...674 lx
 - Resolution: 10 bit
 - Spectral range: 700...1050 nm
- Temperature range: -40 °C...+60 °C (ice free)
- Protection type: IP 55 in functional position
- Dimensions (Ø x H): 130 mm x 200 mm
- Mounting: wall- or mast mounting

WS 10H

Art.-No. 110 01 302

15...30 V DC

**Brightness Sensor WS 10H**

The brightness sensor is used for detection and evaluation of brightness and is suitable for outdoor mounting.
In order to avoid humidity in the housing, the sensor is equipped with a pressure compensation element (climate diaphragm).
The brightness detected by a photodiode is electronically converted into a linear, analog output signal of 0...10 V.
Notice: The opening angle of the light sensor is limited to 50 °... 60 ° in order to obtain measuring values independent from the direction

Technical Data

- Supply voltage: 15...30 V DC / 5 mA
- Measuring range: 0...60000 lx, linear
- Signal output: 0...10 V (min. 1 kW load), short circuit protection
- Accuracy: 15 % of target (day light)
- Protection type: IP 65
- Dimensions: 64 (90 with Pg) x 58 x 35 mm

WS 10D

Art.-No. 110 01 303

15...30 V DC

**Twilight Sensor WS 10D**

The twilight sensor is used for detection and evaluation of brightness within the range of e.g. 0...255 Lux, in which a brightness sensor would be too inaccurate.
The brightness detected by a photodiode is electronically converted into a linear, analog output signal of 0...10 V.
Notice: The opening angle of the light sensor is limited to 50 °... 60 ° in order to obtain measuring values independent from the direction.

Technical Data

- Supply voltage: 15...30 V DC / 5 mA
- Measuring range: 0...255 lx, linear
- Signal output: 0...10 V (min. 1 kW load), short circuit protection
- Accuracy: 15 % of target (day light)
- Protection type: IP 65
- Dimensions: 64 (90 with Pg) x 58 x 35 mm

WS 10R	Art.-Nr. 110 01 204	15...30 V DC
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Rain Sensor WS 10R

The rain sensor is used for detection and evaluation of precipitation. By means of a meander-shaped sensor the conductivity of the rainwater is evaluated. A micro-processor controls the heating and provides an output signal of 0 V or 10 V.
By means of a built-in heater (accessory Heater Transformer Art.-No. 110 01 901 necessary) the end of the precipitation can be detected almost immediately.

Technical Data

- Supply voltage: 15...30 V DC / 10 mA (without heating)
- Signal output: 0 V dry, 10 V rain (min. 1 kW load)
- Protection type: IP 65
- Dimensions: 82 x 60 x 17 mm (without mounting angle)

WS 10T	Art.-No. 110 01 305	15...30 V DC
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Temperature Sensor WS 10T

The temperature sensor is used for detection and evaluation of temperature and is suitable for outdoor mounting.
In order to avoid humidity in the housing, the sensor is equipped with a pressure compensation element (climate diaphragm).

Technical Data

- Supply voltage: 15...30 V DC / 7 mA
- Measuring range: -30 °C up to +70 °C, linear
- Accuracy: ±0,3 K (DIN 43760)
- Signal output: 0 ...10 V (min. 1 kW load) short circuit protection
- Protection type: IP 65
- Dimensions: 64 (90 with Pg) x 58 x 35 mm

WS 10W

Art.-No. 110 01 306

24 V DC



Wind Speed Sensor WS 10W

The wind sensor is used for stationary detection and evaluation of the wind speed. The rotation speed detected by a reed contact is electronically converted into an analog output signal of 0...10 V. Build-in-heater prevents condensation (doesn't prevent from freezing in frosty environment).

Technical Data

- Supply voltage: 18...32 V DC / 12 mA (without heating)
- Measuring range: 0,7...40 m/s, linear
- Signal output: 0...10 V (min. 1,5 kW load)
- Dimensions: Ø 134 mm x 160 mm

Survey of Sensors	Description		Article number
For outdoor installation	Wind Speed Sensor	WS 10W	110 01 306
	Temperature Sensor	WS 10T	110 01 305
	Rain Sensor	WS 10R	110 01 204
	Twilight Sensor	WS 10D	110 01 303
	Brightness Sensor	WS 10H	110 01 302
For indoor installation Humidity-/Temperature- Combi-Sensors	Room(10...95 % r.h.	FTF 23	116 22 300
	Air Quality Sensor	LQR 13	110 01 201
Pressure Measuring Devices	DTP		160 2...
	DTW		160 3...
Accessory	Heater Transformer	WS 10HT	110 01 901
	Mounting angle (mast mounting)		110 01 902
	Power Supply 24 V AC		110 01 924

FTR 23

Art.-Nr. 116 22 300

15...30 V DC

**Humidity-/Temperature Sensor FTR 23**

ELKA-Elektronik has developed a humidity-/temperature sensor for use in rooms and in air-conditioning chambers. It has an appealing design and is suitable for wall mounting. The FTR 23 requires no external amplifier electronics, but only a power supply 24 V DC (e.g. out of an ELKA weather station).

The evaluating electronics of the system is integrated in the sensor. The FTR 23 measures the general humidity in gases.

Technical Data

- Supply voltage: 15...30 V DC / 5 mA
- Output (min. 5 kW load)
- Humidity: capacitive sensor
- Temperature: PT 1000
- Rel. humidity: 0...100 % r.h., 0...10 V / 2 mA
- Temperature: -30 °C up to +70 °C, 0...10 V / 2 mA
- Accuracy rel. humidity: ± 2 % (30...90 % r.h.); ± 3 % (10...95 % r.h.)
- Accuracy temperature: ± 0,3 °C, DIN 43760
- Protection type: IP 30
- Dimensions: 74 x 74 x 28 mm

LQR 13

Art.-No. 110 01 201

15...30 V DC

**Air Quality Sensor LQR 13**

The air quality sensor is used for detection and evaluation of gases and vapours like e.g. tobacco smoke in closed rooms. These measured gases contribute considerably to the subjective perception of bad air quality. By means of a mixed gas sensor the LQR 13 reacts to gases. If a preset limiting value is exceeded, the binary output is activated. Thus, corresponding actuators (ventilators, window openers, etc.) can be activated.

By means of an adjusting knob the barrier »good air / bad air« can be adjusted individually. Via a push-button the output's forced contact operation can be activated for either 5, 10 or 15 minutes, independent of the air quality (forced ventilation).

Technical Data

- Supply voltage: 15...30 V DC / 50 mA
- Output (min. 1 kW load): 0 V »good« air quality; 10 V »bad« air quality
- Protection type: IP 30
- Dimensions: 74 x 74 x 28 mm

DTP

Art.-No. see below

230 V AC or 24 V AC / DC

**DTP**

The stationary differential pressure meter DTP monitors air streams and differential pressures in air-conditioning systems like e.g. filter monitoring. The measuring values can be accessed via an analog output 0...10 Volt. Additionally, outputs of 0...20 mA and 4...20 mA are offered.

For visualization of the measuring values, the device can be supplied with a 3.5-digit LCD- or LED-chain for representation of tendencies.

Technical Data

- Supply voltage: 230 V AC or 24 V AC / DC
- Measuring range: see below
- Max. over-pressure: 10-fold nominal pressure at measuring range ≤ 100 mbar; at higher measuring ranges sinking up to the 2-fold nominal pressure
- Accuracy: 0,8 % of target
- Medium: non-aggressive gases
- Output signals: 0...10 V (R_L min. 5 kW)
optional 0...20 mA (R_L ≤ 500 Ω)
optional 4...20 mA (R_L ≤ 500 Ω)
- Protection type: IP 54
- Dimensions: 120 x 80 x 60 mm (without tube connection and cable duct)

Table for determination of the article number: 160 2a bcd

Please insert the appropriate attributes.

a Pressure range	b Operating voltage	c Current output	d Display
100 Pa -1	230 V AC -1	without -0	none -0
300 Pa -2	24 V AC / DC -2	0...20 / 4...20 mA -1	LCD -1
1000 Pa -3			LED -2
3000 Pa -4			
10000 Pa -5			

DTW

Art.-No. see below

230 V AC or 24 V AC / DC

**DTW**

The stationary differential pressure meter DTW monitors air streams and differential pressures in air-conditioning systems like e.g. filter monitoring. The measuring values can be accessed via an analog output 0...10 Volt. In addition, a changeover contact is available whose operating point can be set by an internal potentiometer.

For visualization of the measuring values, the device can be supplied with a 3.5-digit LCD- or LED-chain for representation of tendencies.

Technical Data

- Supply voltage: 230 V AC or 24 V AC / DC
- Measuring range: 1...100 mbar (100 Pa to 10 kPa) differential pressure; on request available up to 1 bar (100 kPa)
- Max. over-pressure: 10-fold nominal pressure at measuring range ≤ 100 mbar; at higher measuring ranges sinking up to the 2-fold nominal pressure
- Accuracy: 0,8 % of target
- Medium: non-aggressive gases
- Output signals: 0...10 V (R_L min. 5 kW)
- Relay output: 1 x transfer switch 250 V AC / 8 A
- Protection type: IP 54
- Dimensions: 120 x 80 x 60 mm (without tube connection and cable duct)

Table for determination of the article number: 160 3a bcd

Please insert the appropriate attributes.

a Pressure range	b Operation voltage	c Changeover contact	d Display
100 Pa -1	230 V AC -1	-1	none -0
300 Pa -2	24 V AC / DC -2		LCD -1
1000 Pa -3			LED -2
3000 Pa -4			
10000 Pa -5			



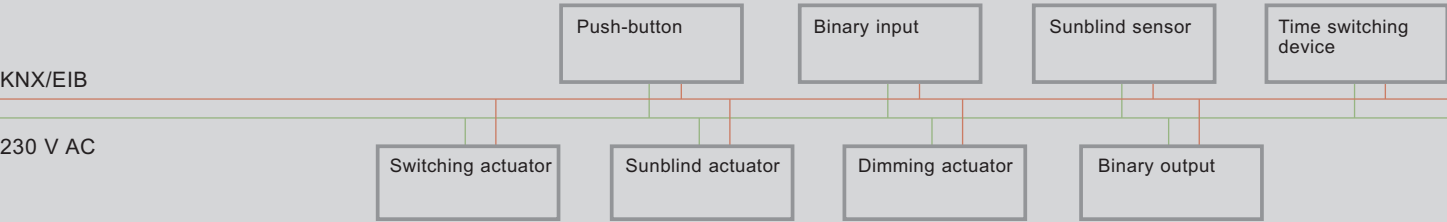
The KNX/EIB technology offers the possibility of integrating all systems of a building in one bus system. The function principle of KNX/EIB technology is based on signal processing between sensors and actuators.

KNX/EIB

The European Installation Bus KNX/EIB is a world-wide standardised installation system for automatic control of the functions in residential and functional buildings. The leading bus system in electric trade increases the safety of persons and property, provides for an efficient use of energy and enhances living comfort. Furthermore, this technology considerably reduces installation work. All systems of a building can be integrated via the bus. From the lighting to the alarm system, from the heating of a room to shutter management. Changing conditions of use can often be answered simply by changing the programming.

Note

Please note that the gateways RS232/485 and DMX can be procured from ELKA direct. The following survey of KNX/EIB components developed and fabricated by ELKA shall give you an impression of the productivity of our company in this field. The components of the ELKA KNX/EIB system are supplied in OEM business via the leading KNX/EIB manufacturers and can be procured via the electronic wholesale. The prices are indicated in the corresponding catalogues of the OEM manufacturers or can be inquired with your electrical wholesaler.



KNX/EIB Weather Data

Weather Station

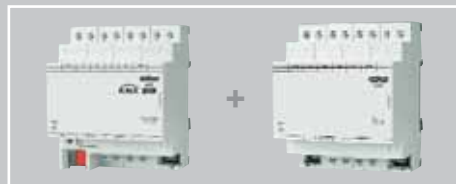
- Basic-Controller
- Extension module
- Sensor module



KNX/EIB Analog technique

Analog input

- Analog input
- Extension module

**Analog output**

- Analog output
- Extension module



KNX/EIB Visualization and control

Mini Panel MT 701 *econ*
and Info Display

KNX/EIB Room Operation

Room Control Device FD-design,
RCD2000 and SmartSensor

RS232/485

Art.-No. 135 16 100

230 V AC

**KNX/EIB Gateway RS232/485**

The *instabus*® KNX/EIB-gateway is an intelligent system device which allows coupling of different external systems with RS232/485 interface to the *instabus*® KNX/EIB. To realize this function, the customer-neutral gateway is directly coupled to the KNX/EIB; the external system is provided with a standard-RS232 or standard-RS485-interface (full- or half-duplex). The gateway is configured by means of the tool software EIBGATE® and connected to the EIB objects (KNX DTP) also with 14 Byte ASCII-text objects. Typical applications of this gateway are coupling the *instabus*® KNX/EIB with a DDC, SPS, media control or visualization.

OEM gateways: Adaptation to an external system on request. The corresponding instructions can be found on the ELKA-website.

Technical Data

- Supply voltage: 230 V AC
(+ 10 % / - 15 %)
- Interfaces: 3
RS 232 (D-Sub 9)
RS 485 (screw terminal)
KNX/EIB (terminal block)
- KNX/EIB objects
- Protection type: IP 20
- Assembly width: 6 TE / 105 mm
- Mounting: DIN-rail DIN EN 50022

(For protocol adaptation of the systems knowledge of an advanced programming language is necessary.)

Purchase directly at ELKA or over the electrical wholesale possible.

DMX

Art.-No. 135 16 110

230 V AC

**KNX/EIB Gateway DMX**

The *instabus*® KNX/EIB gateway DMX allows coupling DMX512-systems to the *instabus*® KNX/EIB. The tool software EIBGATE-DMX® configures the gateway and connects the DMX512-devices with the KNX/EIB group addresses. The KNX/EIB telegrams (master operation) or the DMX-telegrams (slave operation) are received by the gateway and are sent onto the *instabus*® KNX/EIB or the DMX512-bus. Thus, the connected system can monitor and list the received data and states of the corresponding bus units. Sending incorrect telegrams is not possible.

Notice: A DMX-merger is required for DMX-multimaster operation. For a bidirectional data-stream 2 Gateways are necessary.

Technical Data

- Supply voltage: 230 V AC
(+ 10 % / - 15 %)
- Interfaces: 3
Format: RS 232 (D-Sub 9) for parameterizing by means of the EIBGATE DMX
DMX 512 (screw terminals)
KNX/EIB (terminal block)
- Protection type: IP 20
- Assembly width: 6 TE / 105 mm
- Mounting: DIN-rail DIN EN 50022-35

Purchase directly at ELKA or over the electrical wholesale possible.



Planning of a building with LED-technology

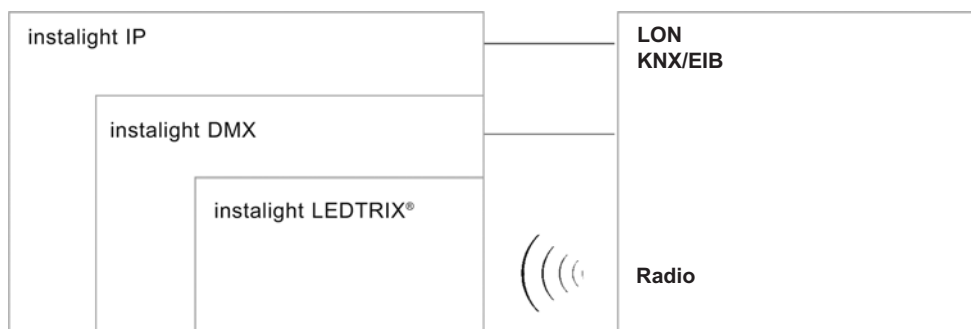
In our close cooperation with planners and system integrators we often experience that in addition to modern planning of buildings with bus systems also intelligent illumination becomes more and more important within a project. ELKA is part of the group of companies Berker, Gira, Jung and Insta. Within this group numerous innovative solutions are being worked out. For building automation with LON or KNX/EIB but also for illumination with LED-technology which we would like to present you on the following pages.

Insta – light management for LED-technology

Since the beginnings of LED-technology Insta has constantly developed new products for professional illumination with the smallest luminaire – the LED (Light Emitting Diode). With their special characteristics LED offer most different design possibilities. So, for instance, lighting and illumination solutions are realised that can be integrated in architecture nearly inconspicuously. Insta offers high-quality LED PCBs in different shapes and technologies as well as the pertaining series and control electronics. Combined with innovative light management solutions simple as well as extremely complex LED illuminations are conceivable. So in addition to the standard LED products nearly any shape and assembly can be chosen with regard to radiation angle, colour and number of LED as well as many possibilities of processing.

From orientation illumination through to facade illumination

Without a sophisticated, flexible and highly professional control technology only a fraction of the efficiency of the LED can be used. Therefore Insta focuses on the manifold application possibilities of LED-technology in planning of a building. With the light management systems instalight LEDTRIX®, instalight DMX and instalight IP, for instance, Insta makes easy use of LED in applications possible. From orientation lighting right through to the integration of whole facade illuminations in building automation.



For the control of LED-applications Insta has developed a light management concept in which the systems instalight LEDTRIX®, insta-light DMX and instalight IP are interlinked and build up onto one another with regard to the requirements of the project.

Facing a constantly growing range of light management solutions and / or devices, for planners, architects and lighting manufacturers it is often difficult to find an optimal solution for their lighting task. Insta supports them with pre-programmed complete solutions out of one hand.



Advantages of LED-technology

Long service life, thus nearly maintenance-free and suitable for areas where access is difficult

Particularly economical, since after-sales service or exchange of the lamps is not necessary

High efficiency and thus low energy consumption

Low heat generation

Mechanically tough

No UV or IR radiation

High luminosity of 30-40 Lumen / Watt

Generation of any light colour without films or filters through use of RGB-LED

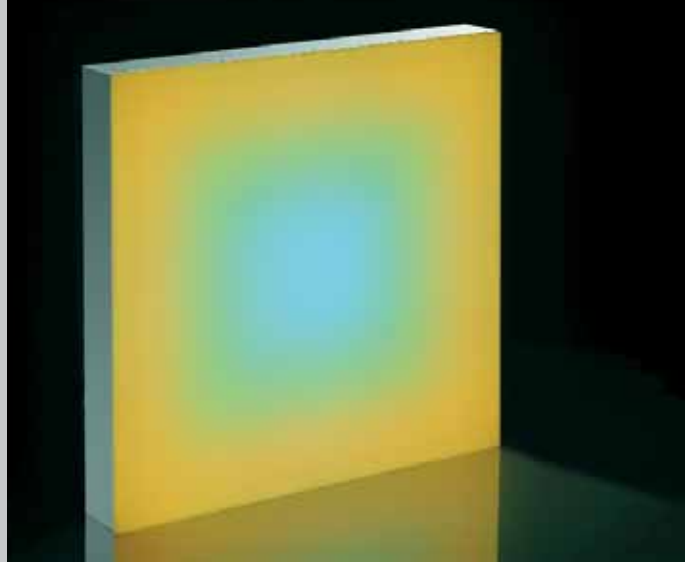
Compact illumination on smallest space

Very small and flexible shape

Dimmable by the use of special controllable ballasts

Defined radiation angles are possible without reflector

Illumination with LED



Possible applications of LED-technology

Illumination and accentuation of building facades, showrooms or large luminous advertising systems

Design of and orientation lighting on squares and paths with light lines and light points

Info signs, orientation systems or emergency lighting

Special effect illumination of advertising surfaces, displays, shop windows or points of sale

Illumination of furniture, tools, gadgets, machines and automobiles

Illumination of goods sensitive to heat or UV-light, like for instance textiles or food



Project planning – the complete solution

You want to integrate LED-technology in a complete project, e.g. within the planning of a building with LON-components of ELKA-Elektronik? ELKA and Insta offer you a "Careless-package". Address your project-related inquiry to your contact person with ELKA who will pass you on to a competent Insta colleague. So you will get competent support in the realisation of your ideas. Complete – with analyses, proposals and pre-programmed complete solutions – everything out of one hand.

LED-applications – without integration into building automation

If your inquiry is an LED-application that is not integrated in building automation, please contact Insta direct. The qualified team will be pleased to answer your questions on products or give you support in project-specific solutions.

Please contact us.

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Terms and Conditions of Sale, Delivery and Payment with effect from 1. March 2002

§ 1 Validity

These terms and conditions are valid in so far as no agreement to the contrary has been made in writing. Any conflicting or deviating terms and conditions on the part of the customer are not binding for us even if we have not explicitly opposed them or if we have executed the delivery without objection.

§ 2 Conclusion of contracts in writing

Our offers are without obligation unless otherwise stated in writing. An order is not deemed to have been accepted until it has been acknowledged by us in writing.

- (2) All agreements, declarations and other data are invalid unless made in writing; telephone calls must be confirmed in writing. Confirmation by telefax is sufficient to meet the requirement of the written form.

§ 3 Scope of deliveries and services

- (1) The documents, drawings, weight specifications, samples etc. attached to our offer are only approximately decisive in so far as nothing to the contrary is derived from the offer.
- (2) The right is explicitly reserved to modify the design, the layout, the material selected and the production process even after acknowledgement of the order has been dispatched, as long as the price and/or the essential performance data or the delivery time are not changed as a result and the customer can reasonably be expected to accept this.

§ 4 Delivery times

- (1) The delivery time specified by us in the acknowledgement of the order is without obligation unless otherwise agreed in writing. Deliveries are explicitly subject to our obtaining delivery correctly and on time ourselves. The delivery time starts with the date on which our acknowledgement of the order is dispatched, but not before complete clarification of all issues relating to technical details.
- (2) The delivery time is extended if unforeseeable and/or unavoidable and/or exceptional events occur, in particular strikes of any kind and failure on the part of our suppliers to deliver to us on time, even if these events do not occur until a delay has already set in. The customer must be notified of this in writing without delay.
- (3) If shipment is delayed at the request of the customer or for other reasons beyond our control, the customer bears the resulting additional costs as well as the risk of accidental loss or of accidental deterioration of the goods to be delivered from the time when he is advised that the goods are ready for shipment.
- (4) If the goods are stored at our factory (or on the premises of a person authorized by us), we are entitled to charge at least 0.5% of the price of the consignment for each month or part thereof during which the goods are stored. We reserve the right to further claims.
- (5) The right to make deliveries in instalments or prematurely is reserved on principle.
- (6) In the event of a delay in delivery for which we are liable, the customer is entitled to claim compensation for default at a rate of up to 3% of the value of the delivery per complete week, but not more than 15% in total. If the customer sets us a deadline appropriate to the circumstances in the event of delayed delivery and if this deadline expires without delivery being made, the customer is entitled to opt for compensation instead of fulfilment and to withdraw from the contract. The precondition for demanding compensation instead of fulfilment is that the breach of obligation for which we are responsible is not trivial.
- (7) The above ruling does not apply if the contract is for delivery by a fixed date as defined by § 376 German Commercial Code (HGB). The same applies if the customer has lost interest in the transaction due to the delay.
- (8) The adherence by us to the delivery time is subject to the punctual and correct fulfilment of the customer's contractual duties, in particular of his financial obligations.

§ 5 Passing of the risk, shipment, packaging

- (1) The risk is passed to the customer from the time the goods leave our factory or our distribution depot respectively (Incoterms 1990), even in the case of delivery by instalments.
- (2) The goods are shipped at the customer's risk and expense. If no shipping instructions are given by the customer, we select the least expensive means of transport and the least expensive route.
- (3) Packaging is charged at cost price unless otherwise agreed.
- (4) We reserve the right to take out a transport insurance policy. In the event of damage in transit, settlement shall be made in accordance with the terms of our insurance policy against submission of the following documents:
- a) ascertainment of the facts by the transport company (e.g. forwarder's receipt),
b) original consignment note,
c) transfer of the claims arising from the damage incurred.
- (5) The customer is under obligation to notify us in writing within 8 days of receipt of the consignment of any damage occurring in transit. The damaged parts are to be returned carriage paid to our Lüdenscheld factory or carriage paid to our respective distribution depot.

§ 6 Prices, terms of payment, securities

- (1) Our prices are calculated ex works or ex respective distribution depot (in accordance with Incoterms 1990).
- (2) Our prices are based on the cost factors relevant at the time of the offer being submitted (acknowledgement of the order). If they change between the time of the contract being concluded and shipment of the goods, we reserve the right to modify the price in reasonable proportion to the increased costs.
- (3) All payments by the customer must be made with no deduction whatsoever onto our bank account in Lüdenscheld by the specified dates. Netting options are due to the customer only when claims are undisputed or have been established with legal force. In these cases the customer also has a right of retention. He furthermore has a right of retention if the right of retention is based on a defective delivery for which we are liable. In these cases the right of retention may be exercised only in proportion to the defect.
- (4) If the customer's economic circumstances undergo changes capable of casting doubt on the fulfilment of the financial obligations after the date of dispatch of our acknowledgement of the order, we are entitled to withhold delivery of the goods or to demand security. If the customer fails to meet our request for the furnishing of security within a reasonable time, we are entitled to withdraw from the contract.
- (5) We grant 2% discount if payment is made within 10 days of the date of the invoice. No discount is granted on payments made in arrears or by bill of exchange. The maximum credit term is 30 days net cash.
- (6) Our agents and sales representatives are not authorized to accept payments or means of payment unless they have collection authority.
- (7) Bills of exchange and cheques are accepted only in payment; all bank, discount and collection charges are charged to the customer. Payments made by bill of exchange or by cheque are deemed to have been made only when the respective sum has been credited to our account.
- (8) If the customer defaults in payment, we are entitled to charge default interest at a rate of 5% above the respective base lending rate.

§ 7 Warranty for defects

- (1) In the event of defects, we are liable to the extent of rectifying faults in design, production, colour, quality or other aspects of workmanship at our discretion free of charge within a reasonable period, either by eliminating the defect free of charge or by supplying a non-defective item. Any replaced parts are to be returned to us on request; to this extent the rules governing withdrawal from the contract are applicable.
- (2) We accept liability for defects that have occurred and have been reported in due time in goods and parts delivered on the basis of reference samples and acceptance samples only if the delivered parts deviate from the reference samples and acceptance samples submitted to and approved by the customer. Failure on the part of the customer to carry out an adequate performance test of such a sample places the onus on the customer and releases us from liability for defects as well as from any other liability.
- (3) Our liability for defects is subject to the customer having given detailed written notice of any patent defects according to § 377 German Commercial Code (HGB) within 10 days of having received the goods. Latent defects must be reported in detail in writing within the same period, calculated from the time of their becoming patent.
- (4) Our liability for defects is moreover subject to the goods having been faultlessly installed, commissioned and utilized under strict observance of our operating instructions.
- (5) In the event of subsequent fulfilment being a failure, the customer is entitled to assert his right to terminate the contract or to reduce the purchase price.
- (6) If the damage has been caused with intent or through gross negligence, the statutory regulations shall apply. In so far as we have culpably infringed an essential contractual obligation, we are liable to pay compensation for the damage, including compensation instead of fulfilment; our liability is limited to foreseeable damage. The same applies if the customer asserts claims for compensation rather than fulfilment.
- (7) The liability to pay compensation under the terms of the German Product Liability Act remains unaffected, as does the liability to pay compensation for personal injury, be it physical injury or impairment of health, including the death of a person.
- (8) The limitation period is 24 months, calculated from the date of delivery.
- (9) In the production of electronic modules in which components manufactured by third parties are processed, our liability for defects is limited to our assigning our claims against the respective components supplier to the customer if requested in writing to do so. Any liability on our part is precluded, however, if the customer is capable of recovering his losses from the respective components supplier.
- (10) In the case of items made to order, a 10% excess or short delivery is deemed to be contractually agreed.

§ 8 Provision of material by the customer

- (1) All materials provided by the customer are supplied free of charge. Our inspection of incoming goods covers quantity and damage in transit. The components are not controlled for quality. Unless detailed documentation with respect to handling is provided by the customer, the components are handled in the same way as our own material. To this extent, the customer renounces the requirement for an inspection of incoming goods according to § 377 German Commercial Code (HGB). We take it for granted that a corresponding inspection of outgoing goods is carried out by the customer. At the same time the customer ensures that his liability insurer or product liability insurer respectively eliminates to this extent the exclusion of cover by agreement in accordance with § 4 I 1 of the General Liability Conditions (AHB).
- (2) We are not liable for damage caused directly or indirectly by the material provided by the customer; the ruling set out in § 7, point (6) remains unaffected.
- (3) Any detailed technical documentation provided by the customer with respect to the material provided will be taken into account in our materials management.

§ 9 Other claims

- (1) The customer is not entitled to claims for compensation other than those dealt with in § 7. This applies regardless of the legal nature of the claim asserted. Claims deriving from the German Product Liability Act remain unaffected.
- (2) Any claims based on point (1) expire by limitation in the period specified in § 7, point (8).

§ 10 Retention of title

- (1) We retain the title to the goods until receipt of all payments deriving from this supply contract, including any other contracts concluded between the customer and ourselves up to the time of conclusion of the present contract. The customer is entitled to resell the reserved goods in the ordinary course of business. However, he assigns to us even now all claims against the buyer or against third parties accruing to him from the resale at the level of the respective invoice value. The customer is authorized to collect these claims even after their assignment.
- Our right to collect the claim ourselves remains unaffected by this. In particular we are entitled to demand that the customer notifies us of the assigned claim, its level and its liable party, provides all data necessary for the collection and surrenders the relevant documents to us without delay, and notifies the liable party in writing of the assignment.
- (2) The customer is not entitled to pledge the reserved goods nor to assign them by way of security to third parties.
- (3) In the event of the customer's conduct being contrary to the terms of the contract, in particular in the event of default in payment, we are entitled to take possession of the goods again. Neither the repossession nor the pledging of the goods by us implies any declaration of withdrawal from the contract. The fact is rather that withdrawal is applicable only when explicitly declared by us in writing.
- (4) The customer must notify us without delay of any seizures or other interventions by third parties.
- (5) If the goods are resold together with other goods not belonging to us, the claim by the customer against the buyer is deemed to be assigned at the level of the delivery price agreed between ourselves and the customer.
- (6) In the event of our title being lost due to incorporation, the customer assigns the claim for compensation due to him.
- (7) The treatment and processing of the reserved goods by the customer are always done on our behalf.
- (8) At the customer's request, we are obliged to release securities at our discretion if the realizable value of the claims to be secured exceeds our claim by more than 10%.

§ 11 Place of performance – place of jurisdiction – scope of validity

- (1) The place of performance for all obligations arising from this contract, including any claim for termination, is Lüdenscheld.
- (2) The place of jurisdiction is Lüdenscheld. This also applies to any actions on bills of exchange or cheques, in particular to claims arising from default proceedings. As long as judicial proceedings against us are not yet pending, however, we are entitled also to sue the customer at the court responsible for his domicile.
- (3) These Terms and Conditions of Sale, Delivery and Payment are valid only with respect to entrepreneurs as defined by § 14 German Civil Code (BGB).

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