Transportation Solutions

LÜTZE
Rail Technology

Product Innovations - InnoTrans 2016

IRIS Certification

LÜTZE TRANSPORTATION


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InnoTrans 2016
The Future of Mobility

As in every “InnoTrans year” the show is the event to show all the exciting news and innovations in the LÜTZE TRANSPORTATION portfolio.

On the following pages you will find the highlights of our booth and the technical details about our actual innovations of Control Technology, Interface and Indication.

Overview

Control Technology

Interface

Indication

LION SAFE CCU – Scalable Safety Control Intelligence

The new LION SAFE CCU is a train control unit and can be used for applications up to a safety level of SIL2. The safety-related and non-safe application software code can coexist inside of the same control unit without any cross influences.

Key features

- capable for use as a control unit in safety related applications up to SIL2
- compliant to the standards EN50126, EN50128, EN50129, EN50155, EN50159, EN50121, EN45545
- comfortable software development of safe and non-safe code with one development tool
- no need of complex validation process if only non-safe modifications are modified
- time-effective programming phases, saving of development process cost

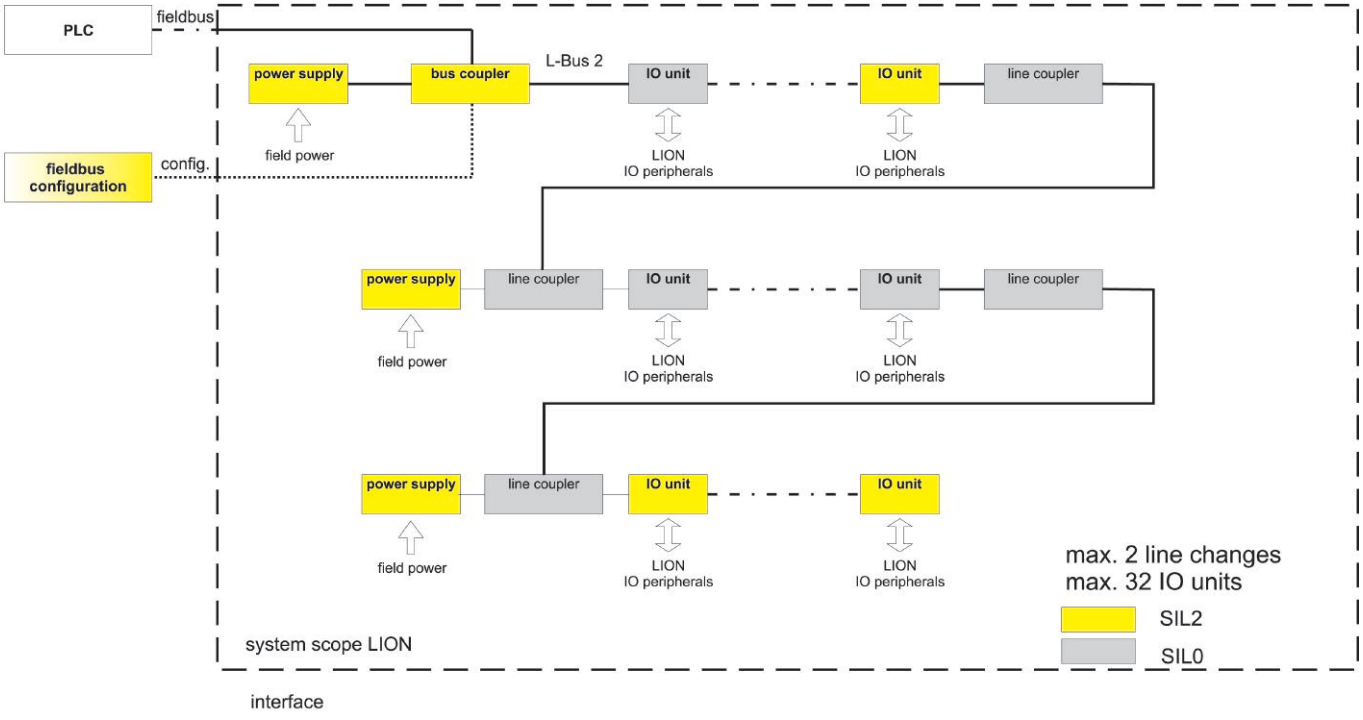
Technical Data	
Part Number	**802104**
CPU	
CPU 1	ARM Cortex A8 800 MHz Safe CPU with safe OS, safe scheduler and safe redundant runtime system
CPU 2	ARM netX 500 200MHz standard CPU as communication controller with standard soft-plc runtime system
Communication Interfaces	
Fieldbus 1	MVB Slave EMD Interface with SDTv2 safety protocol layer
Fieldbus 2	CAN Interface available as CANopen Slave, CANopen Master, CAN2.0
Fieldbus 3	Ethernet Interface for TRDP or standard TCP/IP
Local Bus 1	L-Bus² Interface for connection of local safety-related I/O modules
Local Bus 2	LUETZE-LINK-Interface for generic integration of safe 3rd party devices
Other Interfaces	
Relays	Two relays with positive driven contacts for indication of events or states
USB Interface	USB Host for flash drives for firmware & program updates, system logging
RTC	On-board Real Time Clock
Power Supply	
Operation Voltage	DC 24 V … 110 V (via LION PS Module)
Software	
Programming	via Ethernet Interface
Diagnostic	via Web Interface
Safety Programing Environment	SafeOS and SafeProg
Standard Programing Environment	embedded CLR and Multiprog

LION SAFE BC ETHERNET TRDP

The LION SAFE Remote I/O family has been extended by a new Bus Coupler. The **LION Safe Bus Coupler Ethernet TRDP** is a Gateway between safe and non-safe I/O data from connected LION I/O Modules to Ethernet TRDP. As the system can be used for applications with a safety integrity level up to SIL2, the communication protocol can be extended with the safety frame of SDTv2.

Key features

- capable for use as a remote I/O unit in safety related applications up to SIL2
- compliant to the standards EN50126, EN50128, EN50129, EN50155, EN 50159, EN50121, EN45545
- comfortable creation of TRDP configuration file via LION Framework TRDP Configurator
- detailed and deep diagnostic functions, accessible via an embedded webserver
- 1-channel-safety-architecture, no component redundancy is needed
- combination of safety and non-safety components on the same station is possible



LION micro PLC

The new **LION microPLC** is a small-sized PLC with local Input and Output channels and can be used for decentralized control applications on trains. The internal modular concept is designated for creating customized control solutions.

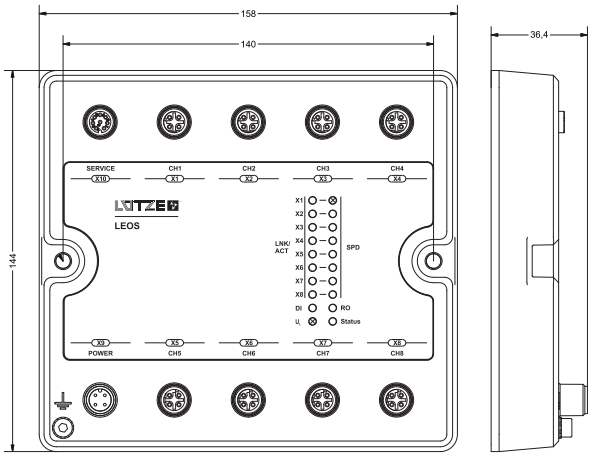
Key feature

- capable for use as a control unit in decentralized areas for small applications for example: sanding units, sanitary cubicles, windscreen wipers, compressors, etc.
- compliant to the standards EN50155, EN50121, EN45545
- comfortable software development with a free development tool
- PLC can be customized easily with a different I/O configuration also as a brand label
- high performance, low price

Technical Data	
CPU	
Main Processor	ARM CORTEX M4 168 MHz
Programm Memory	192 kB in CPU-integrated SRAM
RTC	Real Time Clock, optional with battery
USB Interface	USB Host for flash drives for firmware & program updates, system logging
Performance	100.000 binary operations (bool, Byte, Int, DInt) in approx. 3.3 ms 100.000 real operations in ca. 94.5 ms
Communication Interfaces	
Fieldbus 1	CAN Interface available as CANopen Slave, CAN2.0
Fieldbus 2	Ethernet Interface for generic for standard TCP/IP or UDP/IP communication
Fieldbus 3	Configurable serial Interface as RS485, RS422, RS232 galvanic isolated
Local I/O Channels	
Digital Inputs	16 channels, DC 24 V
Digital Outputs	8 channels, DC 24 V / 0,5 A
Analog Inputs	2 channels, DC 0 … 10 V, 12bit resolution
Analog Outputs	1 channel, DC 0 … 10 V, 12bit resolution
Power Supply	
Operation Voltage	DC 24 V (range DC 16.8 ... 30 V)
Software	
Operating System	real-time operating system: FreeRTOSTM soft-PLC: ProConOS eCLR®
Programming	via Ethernet Interface
Diagnostic	via Web Interface visualization via OPC over Ethernet optional: local Display
Programing Environment	embedded CLR and Multiprog Express
Programing Language	languages defined in IEC 61131-3 - FBD, LD, ST, IL, SFC

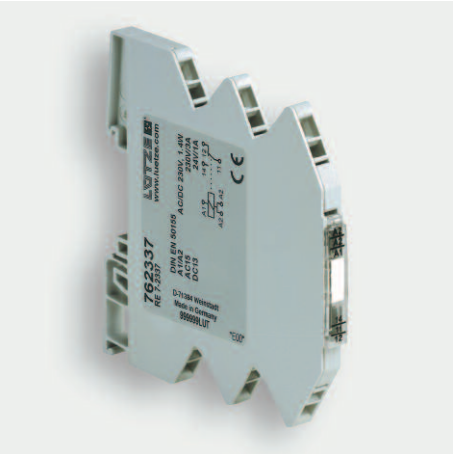
LEOS - LÜTZE Ethernet Onboard System

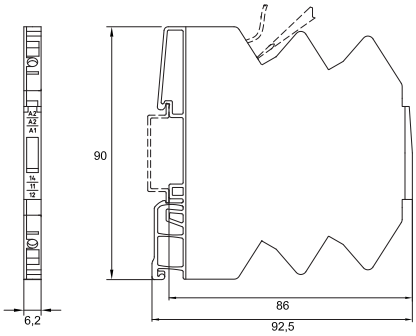
Scalable Network Intelligence
The LEOS product family contains an unmanaged switch, a light managed switch, a full managed switch and a router. These products offer a scalable feature set which is fitting to the different requirements of complexity at Ethernet network installations and reduces the cost for smart installations.



Part. No.	804101	804201	804202	804203
Description	**Unmanaged Ethernet Switch**	**Lite Managed Ethernet Switch**	**Full Managed Ethernet Switch**	**Ethernet Router**
Speed per Port	10/100 MBit/s	10/100 MBit/s	10/100 MBit/s	10/100 MBit/s
Number of Ethernet Ports	8	8	8	8
Ethernet Connectors	M12 d-coded	M12 d-coded	M12 d-coded	M12 d-coded
Power Supply	DC 24 ... 110 V	DC 24 ... 110 V	DC 24 ... 110 V	DC 24 ... 110 V
Operating Temperature	-40 °C ... +70 °C	-40 °C ... +70 °C	-40 °C ... +70 °C	-40 C° ... +70 °C
Basic Switching Features autonegotiation, autopolarity, autocrossing, store-and-forward switching mode	•	•	•	•
USB Interface for software update or system logging	-	•	•	•
Configuration via Web User Interface	-	•	•	•
Digital Input DC 24 V Trigger Input for specific TCP/IP Messages	-	•	•	•
Relay Output Contact AC/DC 150 V Configurable relay contact for indication of specific fault states	-	•	•	•
Lite Managed Switching Features QoS, VLAN, Link Aggregation, Port Mirroring, Speed/Duplex/Active setting, flow control, Broadcast Storm Protection	-	•	•	•
Full Managed Switching Features NTP Server/Client/Broadcasting, SNMP MIB System/if Table/etherStats, DHCP, DHCP Option 82	-	-	•	•
Router Config Features Ring Function Rapid Spanning Tree, 1:1 NAT:Port Address Translation, Static Routing, RIP v1/v2	-	-	-	•
Router Firewall Features Interface based filtering, IP based filtering, TCP/UDP based filtering, Port based filtering	-	-	-	•

Relay Module AC/DC 230 V



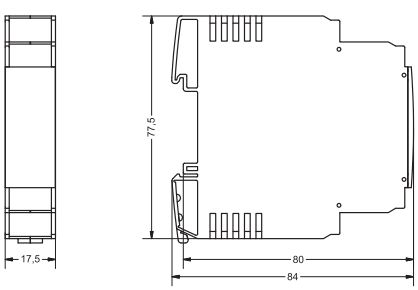


Description

Relay module with coil voltage AC/DC 230 V and 1 CO contact in a 6.2 mm housing

Part No.	762337
Type	RE 7-2337
Input voltage	AC/DC 230 V
Input voltage range	AC/DC 184 V ... 253 V
Input current	6 mA
Switching voltage	AC/DC 1 V ... 250 V
Switching current	AC/DC 1 mA ... 6 A
Switching capacity DC 13	3A @ 24 V
	3A @ 115 V
	3A @ 230 V
Switching capacity DC 13	1 A @ 24 V
	0.2 A @ 115 V
	0.1 A @ 230 V
Contacts	1 CO
Contact material	AgSnO hard gold plated
Dimensions (WxHxD)	6.2 x 90.0 x 92.5 mm
Connection	Spring terminal
Operation temperature range	-40 °C ... +70 °C
Standards	EN 50155, EN 50121-3-2, EN 50124, EN 61373, EN 45545-2

Relay Modules 2NO / 1NC with forcibly guided contacts

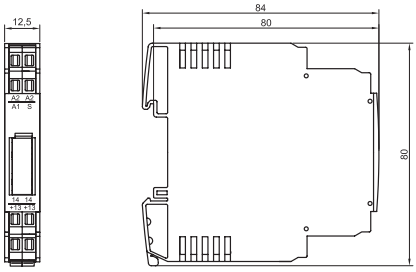


Description

Relay modules with 2NO / 1NC contacts, forcibly guided acc. to IEC 61810-3 type A

Part No.	814012.0024	814012.0036	814012.0072	814012.0110
Type	LRZK 6F-D024-120H-01	LRZK 6F-D036-120H-01	LRZK 6F-D072-120H-01	LRZK 6F-D110-120H-01
Input voltage	DC 24 V	DC 36 V	DC 72 V	DC 110 V
Input voltage range	DC 16.8 ... 30 V	DC 25.2 ... 45 V	DC 50.4 ... 90 V	DC 77 ... 137.5 V
Input current	max. 34 mA	max. 24 mA	max. 14 mA	max. 10 mA
Switching voltage	AC/DC 5 V ... 250 V			
Switching current	AC/DC 3 mA ... 10 A			
Contacts	2 NO / 1 NC			
Contact material	AgCuNi + 0.2 µm Au			
Dimensions (WxHxD)	17.5 x 80.0 x 84.0 mm			
Operation temperature range	-40 °C ... +70 °C			
Standards	EN 50155, EN 50121-3-2, EN 50124, EN 61373, EN 45545-2			

Semiconductor Relay Module DC 110 V / 7 A

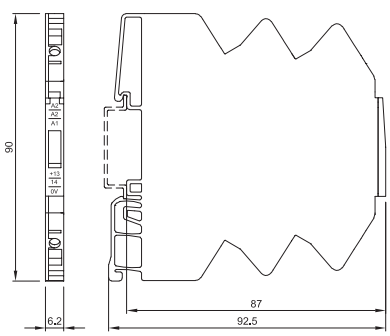


Description

Semiconductor relays for 110 V loads with wide-range control input and status ouput

Part No.	816002.0024	816002.0110
Type	OT 6-6002.0024	OT 6-6002.0110
Input voltage	DC 24 V ... 110 V	DC 72 V ... 110 V
Input voltage range	DC 14.4 V ... 154 V	DC 50.4 V ... 154 V
Switching threshold	> 14,4 V	> 35 V
Input current	17 mA @ 24 V	5 mA @ 110 V
Switching voltage	max. DC 154 V	
Switching current	max. DC 7 A	
Switching frequency	< 100 Hz	
Switching element	MOSFET Transistor, short-circuit and overload protection	
Status indication	Output activated (yellow LED)	
	Output „ON“ and load current > 0.5 A (green LED)	
Status output „S“	„ON“ at load current > 0.5 A (U_{A1}, max. 50 mA)	
Dimensions (WxHxD)	12.5 x 80.0 x 84.0 mm	
Connection	Spring terminal	
Operation temperature range	-40 °C ... +70 °C	
Standards	EN 50155, EN 50121-3-2, EN 50124, EN 61373, EN 45545-2	

Semiconductor Relay Module DC 24 V / 20 kHz

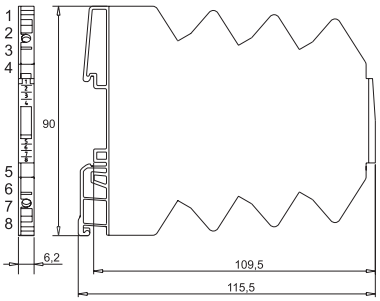


Description

Semiconductor relay for 24 V loads with push-pull output for switching frequencies up to 20 kHz

Part No.	816006.0024
Type	OT 7-6006.0024
Input voltage	DC 24 V
Input voltage range	DC 14.4 V ... 33.6 V
Input current	13 mA
Switching voltage	max. DC 33.6 V
Switching current	max. DC 20 mA
Switching frequency	max. 20 kHz
Dimensions (WxHxD)	6.2 x 90.0 x 92.5 mm
Connection	Spring terminal
Operation temperature range	-40 °C ... +70 °C
Standards	EN 50155, EN 50121-3-2, EN 50124, EN 61373, EN 45545-2

LCON Analog-Analog-Splitter

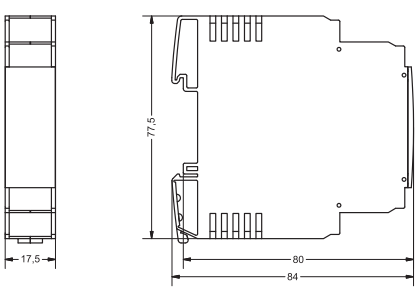


Description

The LCON Analog-Analog-Splitter is used for isolated multiplication of analog signals. The input and output ranges can be set by using a DIP switch or the configuration software „PACTware“.

Part No.	817019
Type	LCON AASP DFDT 806211-01
Measurement input	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, user selectable
Output 1	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, user selectable
Output 2	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, user selectable
Transmission frequency	max. 30 Hz
Accuracy	0.1 % FSR
Linearity	± 0.1 % FSR
Supply voltage	DC 24 V
Galvanic isolation I/O	4-way isolation 2.5 kV_{eff}
Dimensions (WxHxD)	6,2 x 90,0 x 115,5 mm
Connection	Spring terminal
Operation temperature range	-40 °C ... +70 °C
Standards	EN 50155, EN 50121-3-2, EN 50124, EN 61373, EN 45545-2

Frequency-Analog-Converter

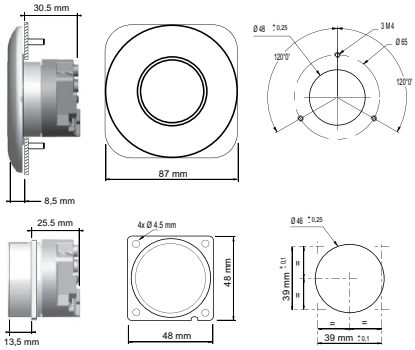


Description

The Frequency-Analog-Converter is used to convert a frequency signal to a standard analog signal. The input and output ranges, as well as the hysteresis, can be set via a DIP switch.

Part No.	817020
Type	WNFA 6-7020
Measurement input	21 input ranges between 0 ... 100 Hz and 0 ... 28 kHz, adjustable via DIP switch
Hysteresis	0.5 Vpp / 5 Vpp, adjustable via DIP switch
Output	0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA, adjustable via DIP switch
Accuracy	0.1 % FSR
Linearity	0.02 %
Supply voltage	DC 24 V
Galvanic isolation I/O	3-way isolation 2.5 kV_{eff}
Dimensions (WxHxD)	17.5 x 80.0 x 84.0 mm
Connection	Spring terminal
Operation temperature range	-40 °C ... +70 °C
Standards	EN 50155, EN 50121-3-2, EN 50124, EN 61373, EN 45545-2

Socket outlet for driver´s cabs and passenger area



Description

Schuko panel socket for driver´s cabs and passenger areas on rail vehicles.

Part No.	**810015**
Type	ST-0015 250V 16A
Rated voltage	250 V
Rated current	16 A
Connector type	F (CEE 7/3)
Service life time	50,000 cycles
Dimensions	Ø 87.0 x 39,0 mm (with bezel) / 48.0 x 48.0 x 39.0 mm (without bezel)
Connection	Screw terminal
Mounting type	Wall mounting / Rear wall mounting (without bezel)
Protection degree	IP 40 (front) / IP 20 (back)
Operation temperature range	-40 °C ... +70 °C
Standards	EN 50155, EN 50124, EN 61373, EN 45545-2
Remarks:	The bezel is not included in delivery and must be ordered separately. Various shapes and colors are available on request. A version with connector type E (CEE 7/5) is available on request.

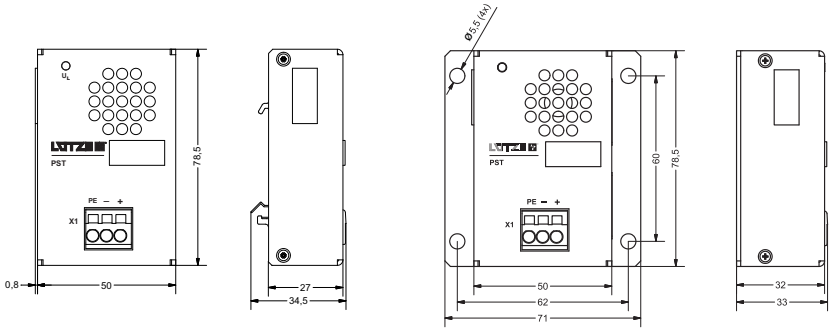
Indication - Piezo Signal Transducers

Programmable Piezo signal transducer

Description

The programmable Piezo signal transducer can be configured with the „Lütze Piezo Configurator“ Tool. Different modes are available. Pulse and pause times, frequencies, as well as the volume can be configured.

Part No.	826020.00	826021.00
Type	PST-6020.00 DC 24-110V	PST-6021.00 DC 24-110V
Nominal voltage	DC 24 ... 110 V	
Sound pressure	85 dB @ 2 KHz at 1 m	
Operation modes	Continous operation, Interval operation, Alternating operation	
Dimensions (WxHxD)	50.0 x 78.5 x 34.5 mm	71.0 x 78.5 x 33.0 mm
Connection	Spring terminal	
Mounting type	DIN rail mounting	Wall mountinng
Protection degree	IP20	
Operation temperature range	-40 °C ... +70 °C (+85 °C 10 min.)	
Standards	EN 50155, EN 50121-3-2, EN 50124, EN 61373, EN 45545-2	

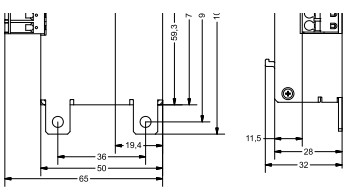


Programmable Piezo signal transducer

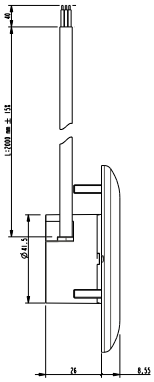
Description

The programmable Piezo signal transducer can be configured with the „Lütze Piezo Configurator“ Tool. Different modes are available. Pulse and pause times, frequencies, as well as the volume can be configured.

Part No.	826022.00
Type	PST-6022.00 DC 24-110V
Nominal voltage	DC 24... 110 V
Sound pressure	85 dB @ 2 KHz at 1 m
Operation modes	Continous operation, Interval operation, Alternating operation
Dimensions (WxHxD)	65.0 x 102.2 x 32.0 mm
Connection	Push-In
Mounting type	Rear wall mounting
Protection degree	IP20
Operation temperature range	-40 °C ... +70 °C (+85 °C 10 min.)
Standards	EN 50155, EN 50121-3-2, EN 50124, EN 61373, EN 45545-2



Configurable Piezo signal transducer



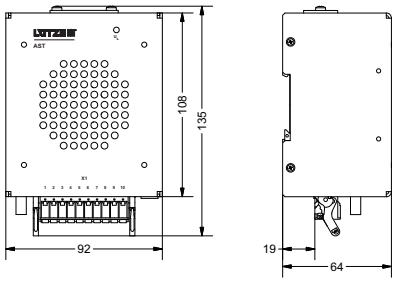
Description

The Piezo signal transducer will be delivered with factory setting according to customer´s specifications. Different operating modes are available. Pulse and pause time, frequencies, as well as the volume can be configured. Up to 7 different tones can be played back.

Part No.	**826024.xx**
Type	PST-6024.xx
Supply voltage	DC 24 V
Sound pressure	60 dB / 65 dB / 70 dB at 1 m
Operation modes	Continous operation, Interval operation, Alternating operation
Dimensions	Ø 87.0 x 35.0 mm (with bezel) / Ø 73.0 x 35.0 mm (without bezel)
Connection	Connecting lead 4 x 0,5 mm² FLAMEX SH 20, length: 2000 mm
Mounting type	Wall mounting / Rear wall mounting (without bezel)
Protection degree	IP 67
Operation temperature range	-25 °C ... +70 °C
Standards	EN 50155, EN 50121-3-2, EN 50124, EN 61373, EN 45545-2, TSI PRM
Remarks:	The bezel is not included in delivery and must be ordered separately. Various shapes and colors are available on request.

Indication - Audio Signal Transducers

Programmable Audio signal transducer for DIN rail or rear wall mounting



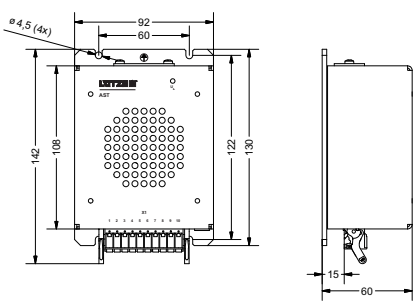
Description

Freely programmable Audio signal transducer to play MP3 and WAV files. The Audio signal transducer has an status output for signalling the readiness for operation.

Part No.	826016.00
Type	AST-6016.00 DC 24-110V
Nominal voltage	DC 24 ... 110 V
Sound pressure	104 dB @ 2 KHz at 1 m
Max. audio duration	15 min. at mp3 (16 kbit/s)
Volume control	can be configured or set via potentiomter
Boot-up time	< 200 ms
Status output	max. 50 mA
No. of inputs	6
Dimensions (WxHxD)	92.0 x 135.0 x 64.0 mm
Connection	Push-In
Mounting type	DIN rail mounting / rear wall mounting *)
Protection degree	IP20
Operation temperature range	-40 °C ... 70°C (+85 °C 10 min.)
Standards	EN 50155, EN 50121-3-2, EN 50124, EN 61373, EN 45545-2

*) Mounting device part no. 826092 required

Programmable Audio signal transducer for wall mounting



Description

Freely programmable Audio signal transducer to play MP3 and WAV files. The Audio signal transducer has an status output for signalling the readiness for operation.

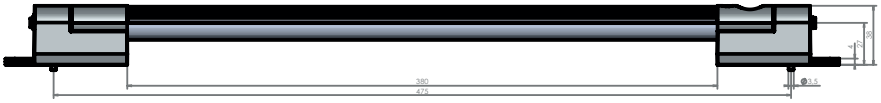
Part No.	826017.00
Type	AST-6017.00 DC 24-110V
Nominal voltage	DC 24 ... 110 V
Sound pressure	104 dB @ 2 KHz at 1 m
Max. audio duration	15 min. at mp3 (16 kbit/s)
Volume control	can be configured or set via potentiomter
Boot-up time	< 200 ms
Status output	max. 50 mA
No. of inputs	6
Dimensions (WxHxD)	92.0 x 142.0 x 60.0 mm
Connection	Push-In
Mounting type	Wall mounting
Protection degree	IP20
Operation temperature range	-40 °C ... 70 °C (+85 °C 10 min.)
Standards	EN 50155, EN 50121-3-2, EN 50124, EN 61373, EN 45545-2

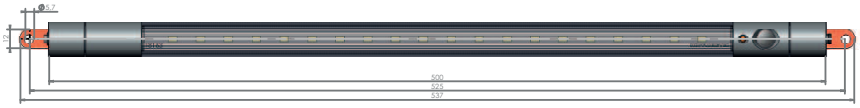
Lighting element for cabinets

Description

LED lighting element to illuminate the interior of control cabinets on railway vehicles. The prismatic integrated into the light cover ensures optimum illumination. Swiveling enables optimum adjustment to the relevant cabinet depth. The lighting element can be switched on and off either via the integrated button or an external door position switch. Series connection of two or more lighting elements reduces cabling effort, when control cabinets are arranged in series.

Part No.	**822002**
Type	BLE-2002
Nominal voltage	DC 24 V
Voltage range	DC 16,8 V – 30 V
Light elements	20 LED neutral white
Color temperature	5000 K
LED service life	50,000 h (L70 value)
Illumination	max. 1350 lx @ 0.5 m
Dimensions (WxHxL)	23.0 x 38.0 x 537 mm
Connection	M8 male connector 3-pole (snap-in)
Mounting type	Screw mounting
Protection degree	IP 20
Operation temperature range	-25 °C ... +70 °C
Standards	EN 50155, EN 50121-3-2, EN 50124, EN 61373, EN 45545-2
Remarks:	Suitable railway approved M8 connecting cables are available on request.





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