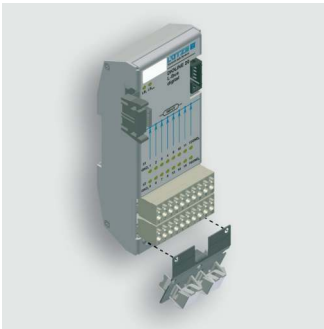


Technical data sheet

DIOLINE local-bus expansion module with 16 digital inputs, DC 24 V



Identification

Type DL-LB-DI-2X8-24V
Part No. [746400](#)

Product version

Hardware revision C
Software version 2.30
Datasheet version 02

Use/Application/Properties

Description DIOLINE local-bus expansion module with 16 digital inputs (2 potentials) for use on rail vehicles

Bus interface

Bus system Lütze bus
Data capacity in process image 2 Byte inputs
Transmission medium Flat conductor, 10-pin
Connection type, incoming bus Socket connector IDE, 10-pin
Connection type, continuing bus Plug connector IDE, 10-pin

Supply module electronic

Rated current (at U_N) nom. 10 m A

Inputs

Number 16 (1-8 potential A, 9-16 potential B)
Input voltage DC 0 – 30 V (short-time protected against polarity reversal)
Rated voltage U_N 30 V
Signal characteristic curve „0“ signal: DC 0 ... 6 V
„1“ signal: DC 12.5 ... 30 V

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31.05.2022 • Subject to technical modification

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Input current	"0" signal: 0 mA "1" signal at DC 24 V: min. 25 mA for 7 ms when switching on, dropping to min. 4 mA "1" signal limit values: max. 50 mA at DC 30 V making current, min. 2 mA at DC 16.8 V continuous current
Critical frequency	10 Hz @ 50 % duty factor
Switch-on delay	nom. 8,5 ms The times each contain the CAN processing time and may deviate in other bus systems depending on the update rate.
Switch-off delay	nom. 11 ms The times each contain the CAN processing time and may deviate in other bus systems depending on the update rate.
Connection type input	X1, X2: Terminal each 1×10-pin Spring terminal 0.14 mm ² – 2.5 mm ² AWG 22 – AWG 12 Strip length: 11 mm Screwdriver: 3.5 × 0.6 mm

Diagnostics

Diagnosis indications	Internal bus active (LB _A), LED green Internal bus error (LB _{ERR}), LED rouge Inputs 16 LED orange The module status flag in the local-bus remains reset.
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Electrical isolation

Potential groups	See diagram "Potential groups"
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General

Housing material	Aluminum
Installation place	1: closed electrical operating areas 2: driver's cabin and passenger area
Mounting	DIN rail mounting
Installation position	Installation space: top: 5 mm (for assembly) bottom: 5 mm (for assembly) side: 0 mm
Dimensions (w × h × d)	57.0 mm × 141.5 mm × 48.0 mm
Weight/unit	0.2 kg

Technical data

Storage temperature range	-40 °C ... +85 °C
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Environmental service conditions

Altitude	2000 m
Operating temperature class	OT4: -40 °C ... +70 °C

Technical data sheet

Switch-on extended Operating temperature class	ST1: OTx + 15 °C (+85 °C 10 min.)
Temperature variation class	H1:no requirements
Shock/Vibration	Category 1, class B
Class of supply voltage interruption	S2: 10 ms
Supply change-over class	C1: 100 ms
Useful life class	L4: 20 years
Degree of pollution	PD2
Over voltage category	OV2
Socket and edge connector	K2: Sockets for ICs and/or edge connectors are not used
Protective coating class	PC2: lacquered on both sides
Degree of protection	IP20 (if all connectors are plugged in)

PE connection

Connection tab	6.3 mm × 0.8 mm
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Failure Rate Prediction (MTBF)

Standards	Electronic components – Reliability – Reference conditions for failure rates and stress models for conversion: EN/IEC 61709 Failure Rates of Components – Expected values: SN 29500
Failure rate at +45 °C	945 fit
Failure rate at +45 °C	1058122 h 1 fit equals one failure per 10 ⁹ component hours The indicated temperature is the mean component ambient temperature.
Comments	The results are valid under following conditions: Automotive environment or industrial areas without extreme dust levels and harmful substances Continuous operation 8760 h per year

Standards/Certifications

Standards	EN 50155:2007: Railway applications – Rolling stock – Electronic equipment EN 50155:2021: Railway applications – Rolling stock – Electronic equipment – only testing according to chapter 13.3 Withstand voltage test: routine test with 1 s test duration EN 50121-3-2:2016: Railway applications – Electromagnetic compatibility – Part 3-2: Rolling stock – Apparatus EN 50124-1:2017: Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment EN 61373:1999: Railway applications – Rolling stock equipment – Shock and vibration tests EN 61373:2010: Railway applications – Rolling stock equipment – Shock and vibration tests Regulation No. EMC 06: Technical Rules on Electromagnetic Compatibility - Verification of radio compatibility of rail vehicles with railroad radio services EN 45545-2:2020: Railway applications – Fire protection on railway vehicles – Part 2: Requirements for fire behaviour of materials and components
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Technical data sheet

Equipment/Spare parts

Accessories

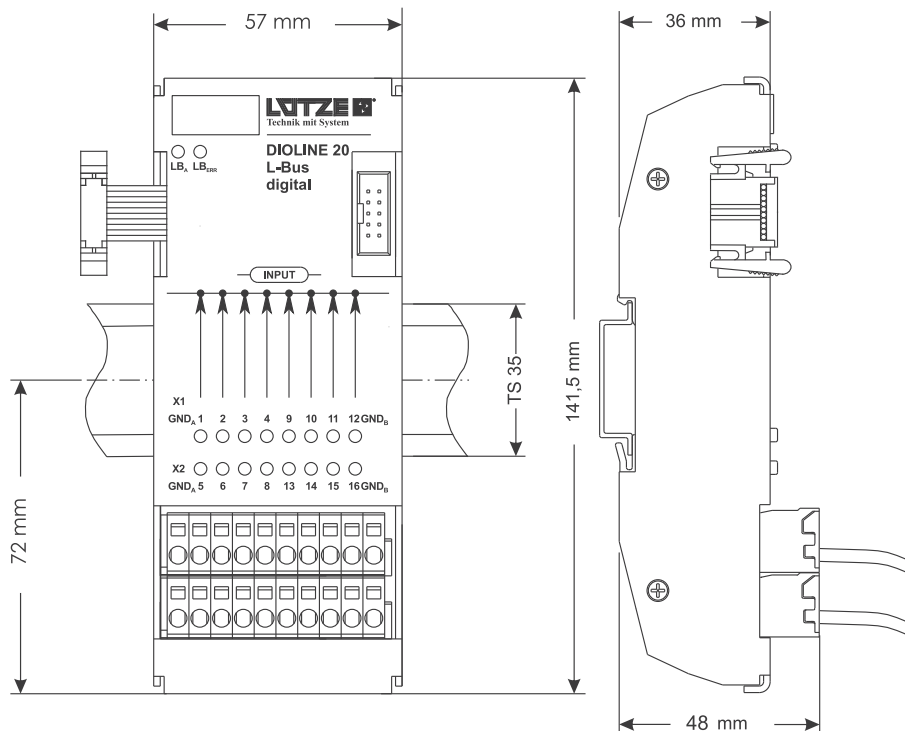
Not included in the delivery:
EMC-Shield clip set, part number 746894
Included in the delivery:
Terminal clamp set, part number 745863

Notes and Comments

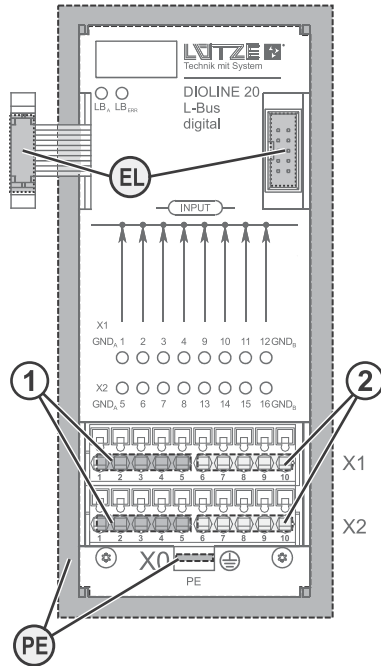
Note

For additional technical documentation please contact us:
sales.transportation@luetze.de

Dimensions



Potential groups



1.
 - DE** Potentialgruppen
 - EN** Potential groups
 - FR** Groupes de potentiel
- (PE): PE (X0), HOUSING,
Potential PE
- (EL): SUPPLY (L-Bus),
ELECTRONIC
Potential EL
- (1): DI (DIGITAL INPUTS):
Potential A:
INPUT A (X1.1 - X1.5)
INPUT A (X2.1 - X2.5)
- (2): DI (DIGITAL INPUTS):
Potential B:
INPUT B (X1.6 - X1.10)
INPUT B (X2.6 - X2.10)
2.
 - DE** Kapazitive Kopplung
 - EN** Capacitive coupling
 - FR** Couplage capacitif
- ca. 220 nF:
(PE) ↔ (EL)
3.
 - DE** Trennspannung/
 - EN** Isolating voltage/
 - FR** Tension d'isolement
- 3.1
Basisisolierung/
Basic insulation/
Isolation de base
-
- 3.2
Verstärkte Isolierung/
Reinforced insulation/
Isolation renforcée
-
- 3.3
Funktionsisolierung/
Functional insulation/
Isolation fonctionnelle
- AC 1500 V:
(1) ↔ (EL) + (PE)
(2) ↔ (EL) + (PE)
(1) ↔ (2)
4.
 - DE** Weitere Kopplungsarten
 - EN** Other coupling types
 - FR** Autres types de couplage
- Varistor: 40 Vrms:
(PE) ↔ (EL)