Technical data sheet

DIOLINE PLC COM/COM

Identification

Type	DL-PLC-COM-COM-LUE
Part No.	746026

Product version

Hardware revision	A
Software version	2.06
Datasheet version	05

Use/Application/Properties

Description	Flexible powerful compact control unit for use in rail vehicles. Freely programmable in a comfortable IEC 61131-3 development environment. Flexible field-bus configuration with CANopen Master. L-Bus interface for connection of local I/O modules.
Use	compact vehicle control unit individual driver and software development possible

General (Software)

Controller	CPU ARM926 200 MHz 32 Bit 4 MB flash program memory 4 kB FRAM memory for retain data 32 MB SD RAM 2 MB flash memory for diagnostic SD memory slot Real-time clock (RTC) with battery Watchdog for system monitoring start-up time: approx. 15 s
Software	Realtime operating system rcX Soft-PLC KW Software ProConOS® Programming languages as per IEC 61131-3: FBD, LD, ST, IL, SFC Flexible fieldbus configuration Visualization per OPC

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General

Dimensions (w × h × d)	123.0 mm × 141.5 mm × 64.1 mm
Weight/unit	0.55 kg
Housing material	Aluminum
Mounting	DIN rail mounting
Installation postition	top: 5 mm (for assembly) bottom: 5 mm (for assembly) side: 0 mm
Installation place	1: closed electrical operating areas 2: driver's cabin and passenger area

Bus interface

	Fieldbus
Bus system	FB1: CANopen
Module type	Master
Configuration	The field bus is configured by software.
Connection type, incoming bus	X2: SUB-D socket connector, 9-pin, M3 thread
Connection type, continuing bus	X3: SUB-D plug connector, 9-pin, M3 thread
	Fieldbus
Bus system	FB2: CANopen
Module type	Master
Connection type, incoming bus	X4: SUB-D socket connector, 9-pin, M3 thread
Connection type, continuing bus	X5: SUB-D plug connector, 9-pin, M3 thread
Configuration	The field bus is configured by software.
	Local bus
Bus system	L-Bus Interface for local I/O modules
Module type	Master
	max. number of connectable slaves: 10
	Ethernet
Bus system	TCP / IP / UDP / OPC / optionally TRDP
Module type	generic
Connection	X6: 4-pin M12 connector D-coded programming and debugging interface
	Diagnostics
Bus system	Serial Interface RS232
Module type	generic
Connection	X7: SUB-D plug connector, 9-pin, M3 thread

Supply module electronic

Voltage range, incl. ripple	DC 16.8 – 30 V
Ripple	Max. 10 %
Rated current (at U_N)	200 mA + current consumption of connected L-Bus modules 2 A fusible link, in case of internal short circuit 1.25 A fusible link, in case of short-circuit of local-bus interface
Current consumption via local bus	max. 1 A
External protection	B2 to B16

Connection	X1: Terminal 5-pin Spring terminal: 0.14 – 2.5 mm², AWG 22 – 12 Stripping length: 11 mm Screwdriver: 3.5 × 0.6 mm

Diagnostics

Diagnosis indications	Device status (PLC) LED yellow Function freely programmable (APP) LED red/green CANopen 1 status ($FB1_{ST}$) LED green CANopen 1 error ($FB1_{ERR}$) LED red CANopen 2 status ($FB2_{ST}$) LED green CANopen 2 error ($FB2_{ERR}$) LED red L-Bus status (LB) LED red/green Logic supply(U_L) LED green Ethernet Link (LNK) LED green Ethernet Activity (ACT) LED yellow Push-button ($J1_{USER}$) function programmable Push-button ($J2_{RESET}$) for warm start

Environmental service conditions

Altitude	2000 m
Operating temperature class	OT4: -40 °C … +70 °C
Switch-on extended Operating temperature class	ST1: OTx + 15 °C
Temperature variation class	H1:no requirements
Shock/Vibration	Category 1, class B
Class of supply voltage interruption	S3: 20 ms
Supply change-over class	C1/C2
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

Electrical isolation

Isolating voltage	AC 500 V Ethernet and elektronics AC 500 V CAN and electronics

Technical data

Storage temperature range	-40 °C … +85 °C

PE connection

Connection tab	X0: 6.3 mm × 0.8 mm

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	3591 fit
Failure rate at +45 °C	278473 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

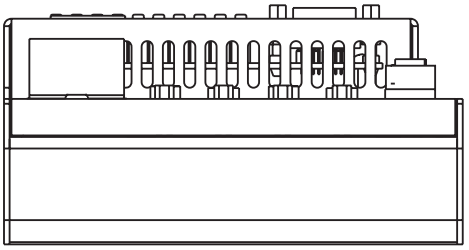
Standards/Certifications

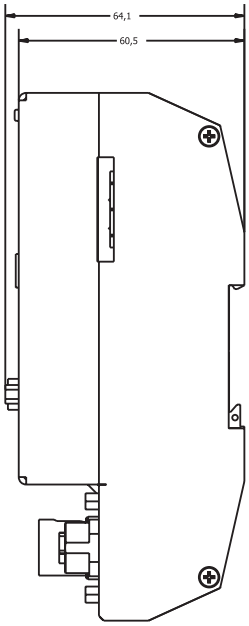
Standards	**EN 50155:2007:** Railway applications – Rolling stock – Electronic equipment **EN 50155:2017:** Railway applications – Rolling stock – Electronic equipment – only testing according to chapter 13.3 **EN 50155:2021:** Railway applications – Rolling stock – Electronic equipment – only testing according to chapter 13.3 **EN 50121-3-2:2016+A1:2019:** 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 **EN 61373/AC:2017:** 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

Equipment/Spare parts

Accessories	Not included in the delivery: SUB-D refitting set M3 in UNC4/40, part number 746840 Included in the delivery: Screwless terminal, power supply, part number 745861 L-Bus dummy connector, part number 745870

Dimensions

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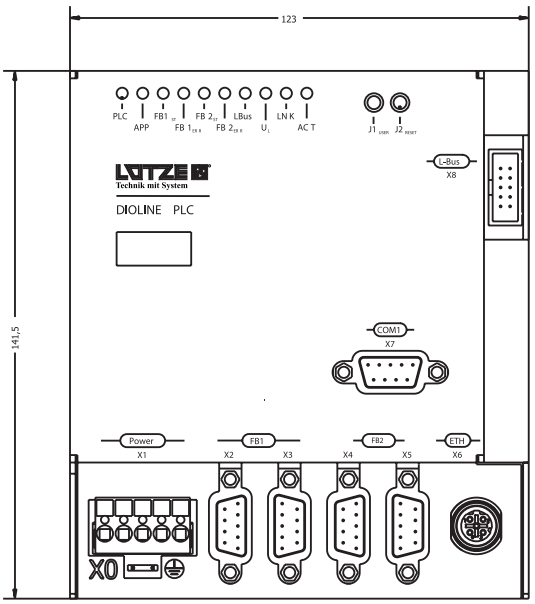
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141,5
PLC
APP
FB1
FB 1
FB 2
FB 2
LBus
LNK
ACT
L-Bus
X8
DIOLINE PLC
COM1
X7
Power
X1
FB1
X2
X3
FB2
X4
X5
ETH
X6
X0