

■ Operating instructions

LEOS Unmanaged Ethernet Switch

804101, LEOS-UM-ETH-SW-WR-LUE

Version 04
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Lütze Transportation GmbH
Bruckwiesenstraße 17-19
D-71384 Weinstadt
Tel.: +49 (0) 7151 6053-545
Fax: +49 (0) 7151 6053-6545
Sales.Transportation@luetze.de
www.luetze-transportation.de



Contents

1	Foreword	4
2	General information	5
2.1	Explanation of symbols	5
2.2	Copyright	5
2.3	Disclaimer	6
2.4	Identification plate	6
3	Safety	8
3.1	Appropriate Use	8
3.2	Addressees	8
4	Product Overview	9
4.1	Overview of product features	10
5	Installation	11
5.1	Mounting options	11
5.2	Wall mounting	11
5.3	Mounting adapter set	12
5.4	Grounding	14
5.5	Wiring	15
6	Initial commissioning	16
6.1	Initial Commissioning	16
6.2	Replacing a defective device	16
7	Diagnostics	17
7.1	LED display	17
8	Service	18
8.1	Known issues	18
9	Decommissioning and disposal	19
10	Amendment index	20

1

Foreword

These instructions are a component of the product:
LEOS Unmanaged Ethernet Switch



These instructions must be read and understood before installing, operating, maintaining or dismantling the device.



Risk of injury and damage to equipment caused by non-observance of the operating instructions.

The instructions contain important information on safety, commissioning, operation, maintenance and disposal of the corresponding device.

Before installation or use, carefully read these instructions in order to rule out possible dangers and damage and to guarantee correct use

NOTICE

Always keep the document to hand.

This applies until the disposal of the product. When selling or lending, pass on the instructions.



These operating instructions can also be found on the website of Lütze Transportation GmbH - www.luetze-transportation.com
Search for either the article number "804101", or the product name „LEOS Unmanaged Ethernet Switch“.

2 General information

2.1 Explanation of symbols

The manual contains safety information, which is characterized by a signal word in combination with a certain colour to indicate the warning level. The information highlights possible dangers and gives instructions on how to avoid them.



Indicates a dangerous situation which leads to death or serious injuries if not observed.



Indicates a dangerous situation which can lead to death or serious injuries if not observed.



Indicates a dangerous situation which can lead to slight or moderate injuries if not observed.

NOTICE

Indicates a situation which could damage the product or the environment. This information foresees injuries.

You will also find icons that indicate important information and action steps:



Indicates technically important information to operate the device safely.



Indicates the use of tools.

2.2 Copyright

This installation manual is intended for the operator and its staff only. It is forbidden to give the contents to a third party, to duplicate, exploit or otherwise disclose it unless authorized expressly and in writing by Lütze Transportation GmbH. Details, texts, images and drawings in the contents are copyright protected and are subject to commercial property rights. Contravention can be prosecuting criminally. The trademarks and product names mentioned in this document are subject to absolute provisions of the effective label right and property rights of the respective registered owners.

2.3

Disclaimer

The installation instructions have been prepared taking into account the applicable standards, provisions and in accordance with the state of technology. The accuracy of the contents of the documentation has been checked, however deviations cannot be ruled out. No liability is assumed for these deviations. Amendments and addenda are also made in the next version of the manual. Lütze Transportation GmbH does not assume liability for damage or accidents that occur as a result of the following:

- Non-compliance with the manual
- When employing untrained or unqualified staff
- Unintended use
- If there are unauthorized changes or functional changes to the device
- If non-original or licensed parts or equipment are used

2.4

Identification plate**Note the identification plate.**

- The identification plate should always be legible
- If there is a fault, the part number and serial number are needed.

The identification plate, which has the following structure, is located on the switch:

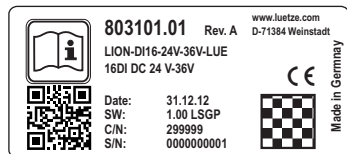


Fig. 1: Example of an identification plate

The identification plate contains the following information:

- Part Number
- Hardware revision
- Module description
- MAC-ID if available
- Production date Software Version
- Serial number:
- Data Matrix Code, contents: serial number, part number, date, MAC-ID
- QR Code, reference to product information

2.4.1

QR Code – Product information

The code refers to additional product information in the online catalog on the Lütze Transportation website. To reach this site, proceed as follows:

1. Scan the QR code with a smartphone or other device that can read QR codes.
2. The default browser opens with the corresponding page.



Fig. 2: Screenshot Online Catalogue – Language selection

3. Select a corresponding language.
4. The device is displayed in the Online Catalogue. Under *Downloads* you can download additional technical documentation.

3 Safety

3.1 Appropriate Use

A correct and safe operation of the device requires an appropriate transport, proper storage, mounting, installation commissioning, operation and maintenance. The permissible ambient conditions must be observed. Information in the accompanying documentation must be observed.

3.2 Addressees

The operating manual is directed towards planners, project managers and programmers, as well as to staff authorized to commission, operate and maintain the devices and systems. A distinction is made between various qualification levels of the staff.

3.2.1 Operating staff

**Risk of injury by use through insufficiently qualified operating staff!**

Incorrect handling by unqualified or insufficiently qualified staff can lead to injuries and damage. Activities, which require specific actions, should only be performed by staff trained in advance, or by experts, notably electricians.

Trained staff

The staff have been trained by the operator in the assigned tasks and have been informed of the possible resulting dangers. They do not have any technical expertise.

Experts

The staff have a technical education, expertise and/or experience in the relevant area and thus are able to perform specific tasks on and with the device.

Electricians

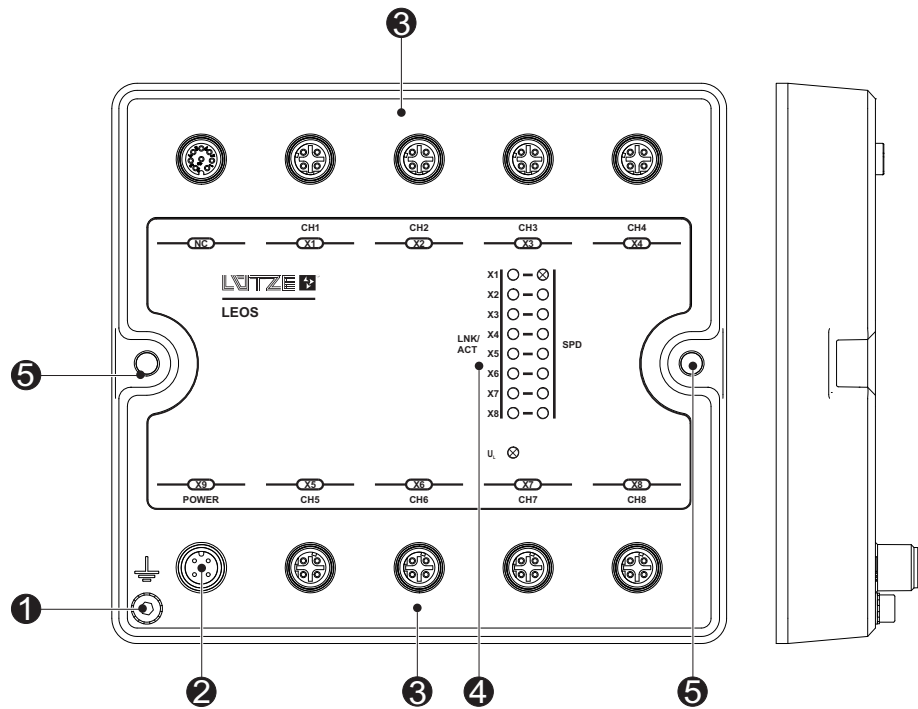
The staff have a technical education in the relevant area and thus are able to perform specific tasks on and with the device.

The qualification levels of the staff are referred to in the individual sections.

4 Product Overview

The LEOS Unmanaged Ethernet Switch has been developed for use in industry and in transport applications. The switch can be configured via an integrated web interface.

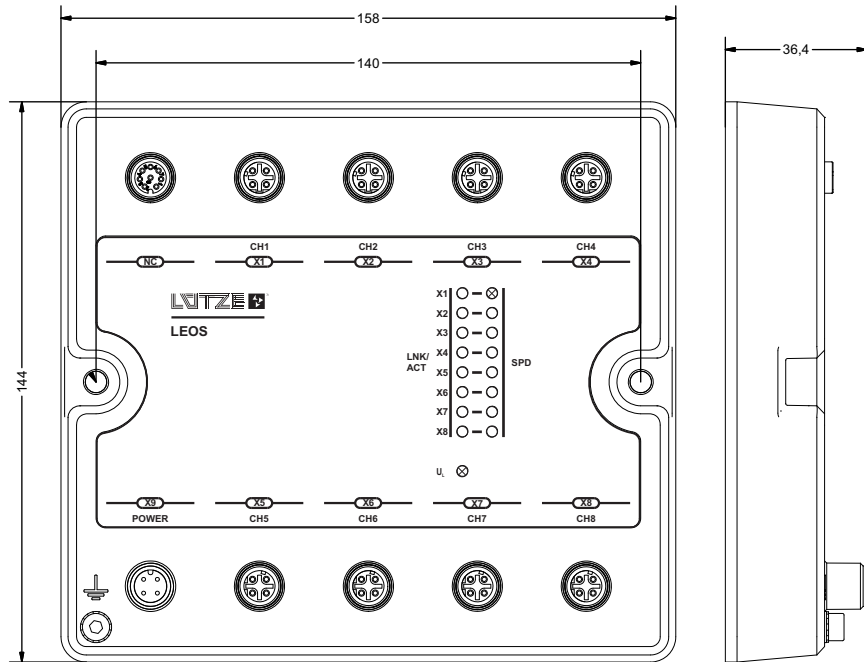
The device is characterized by its robust design, port, prioritization, port disabling, signal contact, configuration management, and remote diagnostics.



1	PE connection
2	Auxiliary power supply (male)
3	Ports
4	LED display
5	Holes for wall mounting

4.1

Overview of product features



Feature	Description
Housing	IP54, Wall mounting
Supply	Range 24 – 110 V
Hardware	Store and Forward Switching Mode
	Autonegotiation
	Autocrossing
	Autopolarity
	LEDs: Logic supply, Link & Activity, Speed
	8 Port with 10/100BASE-TX

5 Installation



WARNING

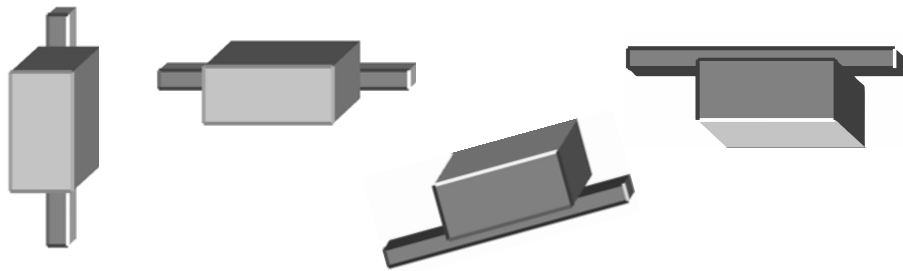
Never wire electrical connections when they are connected to the power supply!
Never wire live wires!



WARNING

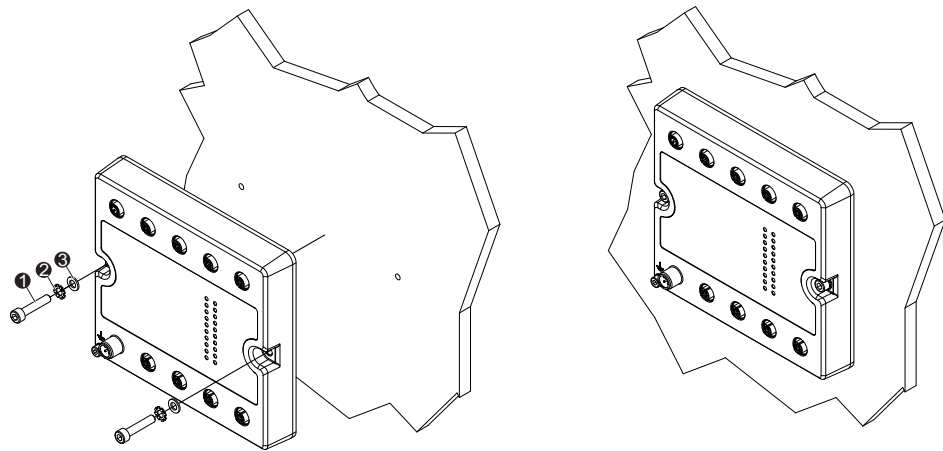
Do not carry out any assembly work on the device when it is connected to the power supply.

5.1 Mounting options



NOTE: Any position and angle is possible.

5.2 Wall mounting



- | | |
|---|--|
| 1 | ISO 4762 M5×25 hexagon socket screw
(equal: DIN 912 M5x25) |
| 2 | ISO 7089 M5 washer (equal: DIN 125 A M5 washer) |
| 3 | DIN 6797 A M5 lock washer (No ISO Standard available.) |



The specified screws and washers are not included with the delivery.

5.3 Mounting adapter set

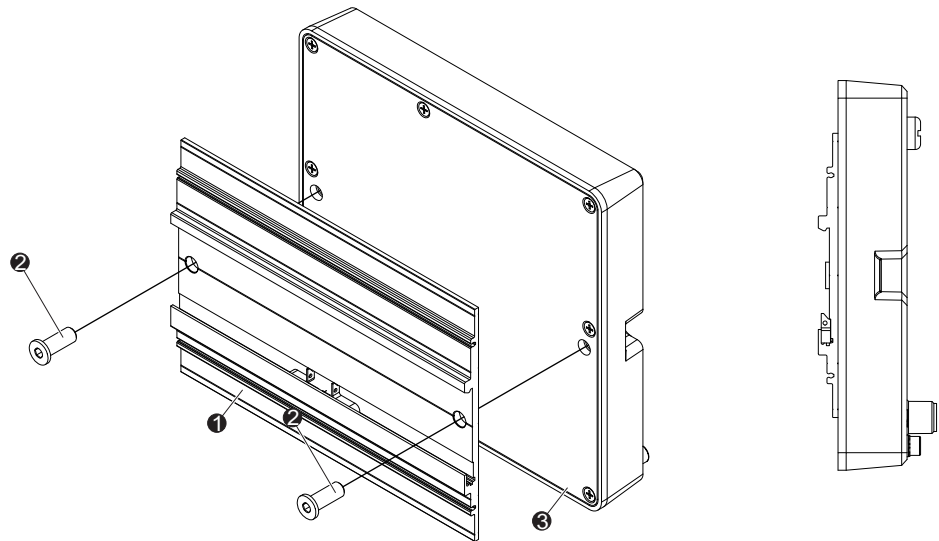
The switch can only be mounted on the DIN rail using the adapter set 804210.



The adapter set is not included with the delivery.



For mounting you need a **T20 screwdriver** (also called a **TX20** or **6-lobe screwdriver** (T20)).



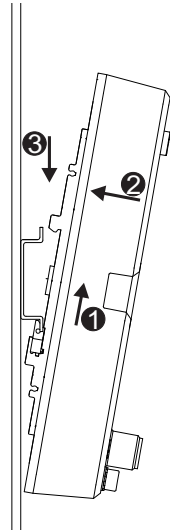
- | | |
|---|----------------------------------|
| 1 | DIN rail adapter |
| 2 | M6x12 flat head screw TX20 (T20) |
| 3 | LEOS Switch |



Torque: **8 Nm**

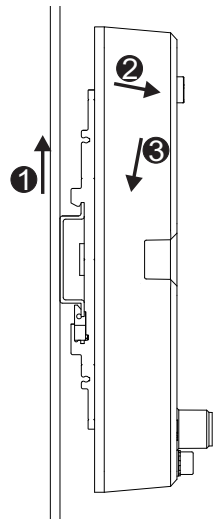
5.3.1

DIN rail mounting



5.3.2

DIN rail end mounting



5.4

Grounding



For mounting you need a **hexagonal key, wrench size 3 mm.**

**Electric shocks and injuries through incorrect grounding.**

- The devices must be grounded by an electrician.
- The ground connection must not be more than 20 cm long. 10 cm is recommended.
- The ground cable must have a gauge of at least 2.5 mm².
- The cable shoe used must be as wide as possible.
- Always ground the device via the PE connection, but the DIN rail.
- Ground the DIN rail separately in order to comply with the EMC Directive.



Torque: **2 Nm**

5.5 Wiring

5.5.1 X1-X8, channels 1 – 8

All ports of the Ethernet Switch are 4-pin, D-coded M12 jacks. The pin assignment is prescribed as follows:

Pin	Signal
1	TX+
2	RX+
3	TX-
4	RX-

5.5.2 X9, power supply

M12 connector 4-pin, A-coded (male)

Pin	Signal
1	DC 24 - 110 V
2	not connected
3	DC 0 V
4	not connected

5.5.3 Connecting lead

NOTICE

Only use connecting leads that fulfil the following criteria:

- Electronic equipment on rolling stock EN 50155
- Shock and vibration EN 61373
- Railway applications - Rolling stock - Electrical connectors, requirements and test methods EN 50467
- Fire protection in rail vehicles EN 45545-1
- Ambient temperature: -40°C – +85°C
- Protection class (fitted) IP54

This is the only way to guarantee the correct operation of the Ethernet Switch.



Recommended torques for protection class IP54

M12 connections **0.6 Nm**

M12 screw plug **0.4 Nm**

5.5.4 Important notice for reaching protection class IP54

In order to reach protection class IP54 when assembled, the recommended torques must be observed during assembly.

NOTICE

All unused connections must be closed with the recommended torque using the screw plugs supplied.

6 Initial commissioning

6.1 Initial Commissioning

Proceed as follows for the initial commissioning:

1. Connect the power supply.
2. Connect the switch to your network devices.

6.2 Replacing a defective device

Replace the defective device by a new one. To do this, dismantle the old device, then mount and wire up the new device. After initial commissioning the device is ready to use.

7 Diagnostics

7.1 LED display

You can carry out an initial, quick device diagnosis using the LED display.

7.1.1 System status LED

These LEDs show the status of the device. The LED display is replicated in the web interface. Their meaning is explained in the following table.

LED	Color	Activity	Mode
Status	-	Off	Operating system is not active
	green	on	No fault
	red	on	A fault has occurred
UL	-	Off	Supply voltage not connected
	green	on	Supply voltage connected

7.1.2 Port LED

Two LEDs are assigned to each network port. Their meaning is explained in the following table.

LED	Color	Activity	Mode
LNK/ ACT	-	none	No network connection (Link Down)
	yellow	on	Network connection (Link Up)
	yellow	Flashing	Data traffic (Link Up)
SPD	-	none	10 Mbit/s (provided Link/Act Link Up signalized)
	green	on	100 Mbit/s

8

Service

If you have general questions about the product or repair enquiries, please contact:

Lütze Transportation GmbH
Bruckwiesenstrasse 17-19
71384 Weinstadt
Tel.: +49 (0) 7151 6053-545
Fax: +49 (0) 7171 6053-6545
Sales.Transportation@luetze.de

8.1

Known issues

This is an excerpt from the software release note. Known issues with the devices are listed below:

- Currently there are no known issues.

9**Decommissioning and disposal**

When decommissioning and disposing of the expansion modules, please comply with the environmental guidelines applicable at the location of the respective country. Dismantle the device and break it down entirely for the disposal. Dispose electronic components according to the national electronic scrap directive. You are obliged to dispose of the supplied goods after the end of use at your own costs correctly in accordance with the statutory provisions and you shall indemnify Lütze Transportation GmbH from the obligations according to s.19 (2) ElektroG (manufacturers' duty to take back waste electrical and electronic equipment) and thus from associated third-party claims. If you pass on the goods to commercial third parties and these are not contractually obliged to assume the disposal and further obligation, it is incumbent upon the customer to take back the goods after end of use at its own costs and to dispose of them correctly according to the statutory provisions. Lütze Transportation GmbH's claim for takeover / indemnification by the customer shall not expire before the end of two years after the final end of use of the device. The two-year period suspension of the period shall not start at the earliest until receipt of written notification by Lütze Transportation GmbH of the end of use.

10

Amendment index

Version	Change	Date
00	New document	2017-04-28
01	Changes at point 1. Foreword, 2.1 Explanation of symbols, 5.2 Wall mounting, 5.3.3 is now 5.4 Grounding, 5.5.3 - Tightening torques added, 5.5.4 Note on achieving protection class IP54 added.	2018-05-15
02	Formal changes	2018-06-07
03	5.5.2 M12 is a connector (male)	2021-08-06
04	5.1 Mounting options, NEW: Any position and angle is possible.	2022-02-16

