

④ LUB-D can be switched off completely by switching off the supply voltage. After reapplying the supply voltage LUB-D checks itself automatically but only operates after receiving an input signal from the PLC.

④ To operate LUB-D via an external controller (PLC) a program corresponding to the communication protocol must be created in the PLC.

④ The output signal at PIN 4 can be tapped for further processing (e.g. indicator light or external control). The maximum permissible current output must not exceed  $I_{max} < 20 \text{ mA}$ . No inductive load (e.g. relay) may be connected!

④ After a long standstill of LUB-D a manually triggered single dispense is recommended. Please use the 2 seconds signal or 8 seconds signal depending on your model.

## 5.2 Input signals

Signal length in seconds	Description	Function	valid for
2 high	Signal 2 seconds	1 stroke PB1	D-1, D-1-1, D-2
5 high	Signal 5 seconds	1 stroke PB2	D-1-1, D-3, D-4
8 high	Signal 8 seconds	1 stroke PB1 and PB2	D-1-1, D-3, D-4
12 high	Signal 12 seconds	FIL function	D-1, D-1-1, D-2, D-3, D-4
14 high	Signal 14 seconds	Error acknowledgement	D-1, D-1-1, D-2, D-3, D-4

④ LUB-D only processes the control signals listed in the table up to a maximum length of 14 seconds. If a high level (+24 V DC) exceeds the defined tolerance level LUB-D does not react. If a high level (+24 V DC) is applied to PIN 2 of the electrical interface for longer than 15 seconds LUB-D does not react.

### Control signal 2 seconds

Immediately after the control signal drops the motor run of LUB-D starts and 0.16 cm<sup>3</sup> lubricant is conveyed to the outlet. Simultaneously, LUB-D sends a low level output signal to the external controller (PLC) to confirm the duration of the motor run.

④ In order to ensure a reliable and unambiguous recognition of the control signal a pause must be observed. The control signal 2 seconds requires a pause time of at least 22 seconds between two identical or different control signals.

### Control signal 5 seconds

Models with 2 PB: The control signal 5 seconds triggers a single dispensing process at pump body 2.

### Control signal 8 seconds

Models with 2 PB: The control signal 8 seconds triggers a single dispensing process at each pump body one after the other.

### Control signal 12 seconds

The control signal 12 seconds triggers the FIL function by the external control.

### Control signal 14 seconds

The control signal 14 seconds is used to acknowledge error messages of errors E2 and E3.

## 5.3 Output signals

Output signal (PIN 4)	Description
high, permanent	ready for operation
high, permanent	received control signal
low, 7...17 seconds	dispensing process
0.5Hz square wave signal, permanent	cartridge empty
low, permanent	error

## 6. Maintenance

### NOTICE

It is not possible to refill empty or opened lubricant cartridges.

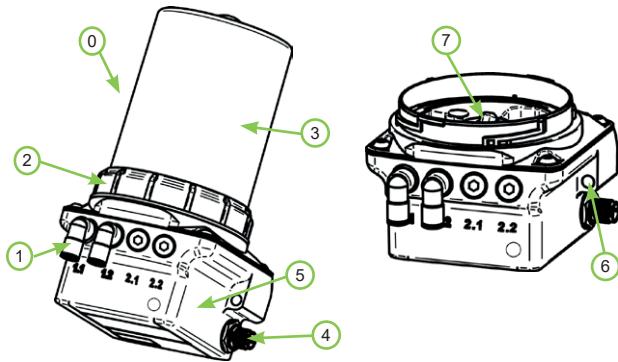
# LUBRICUS

## Quick start guide LUB-D



This brief instruction of mounting LUB-D addresses to experienced users. Please visit [www.G-LUBE.com](http://www.G-LUBE.com) to download the complete user manual including all safety instructions.

## 1. Overview LUB-D



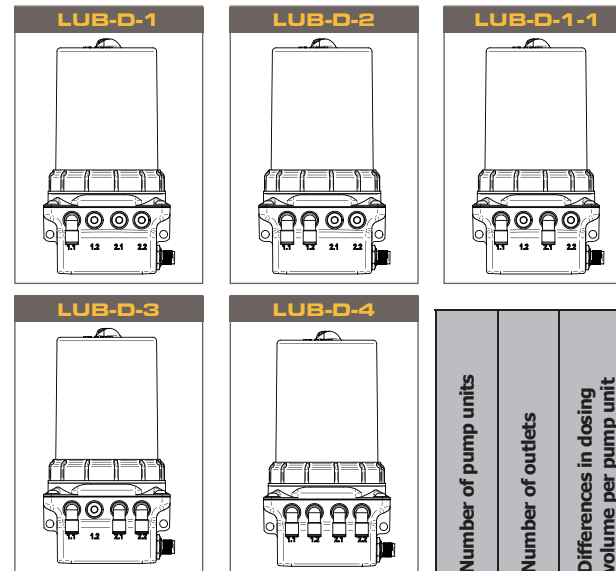
No.	Description
0	Lubricus D (LUB-D)
1	Lubricant outlet(s) (different versions available)
2	Retaining ring
3	Housing
4	M12x1 electrical interface
5	Nameplate with designation, CE mark and serial number
6	Clearance hole for assembly
7	Lubricant inlet with thread for cartridge

## 2. Technical data

Housing		
mounting options	holes for screw M6	
mounting position	upright	
operating temperature	-15 to +60*	°C
Lubricant and hydraulics		
lubricant outlets	1 / 2 / 3 / 4	
max. pressure	70 bar / 1015 psi (-10%/+15%)	
steady state pressure	50 bar / 725 psi	
grease delivery	per stroke	0.16 (-5%) cm <sup>3</sup>
Electrics		
operating voltage	24 (+/- 5%)	V
protection	0,75 (slow blow)	A
protection class	IP 54	

\* The stated value is down to the individual application and may extensively differ in some cases (depending on the lubricant and further conditions).

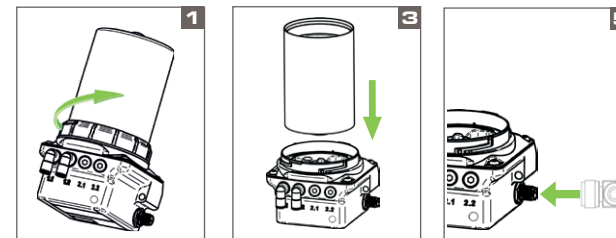
## 3. Models



LUB-D is available as a version with one or two pump bodies and up to 4 outlets. The outlets of pump body (PB) 1 are marked on the housing with 1.1 and 1.2, the outlets of pump body 2 with 2.1 and 2.2.

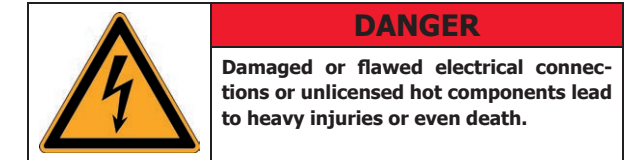
	Number of pump units	Number of outlets	Differences in dosing volume per pump unit
LUB-D-1	1	1	n/a
LUB-D-2	1	2	n/a
LUB-D-1-1	2	2	yes
LUB-D-3	2	3	yes
LUB-D-4	2	4	yes

## 3. Mounting



- Separate the housing from the power unit by turning the retaining ring counterclockwise.
- Turn the cap on the lubricant cartridge counterclockwise and pull it off.
- Place the full lubricant cartridge on LUB-D (label facing front). Turn the lubricant cartridge clockwise onto LUB-D.
- Place the dismantled housing on LUB-D. Fasten the housing to the power unit by turning the retaining ring clockwise.

- To connect LUB-D with an external power supply system add a proper connecting cable to the electrical interface on the side of LUB-D.



### DANGER

Damaged or flawed electrical connections or unlicensed hot components lead to heavy injuries or even death.

## 4. Commissioning

### 1. Mechanical fastening

Fix LUB-D mechanically. Pay particular attention to the maximum tightening torques permissible!

### 2. Electrical connection

### 3. Execute FIL function

### 4. Hydraulic connection

Connect the consumer hydraulically to LUB-D. If you connect tubes to LUB-D make sure that tubes and connectors are installed tightly, cleanly and correctly.

The tube length shall not exceed 5 meters, the inner tube diameter shall not be lower than 4 mm.

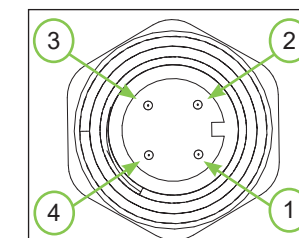
ⓘ Ideally, use tubes prefilled with the appropriate lubricant.

### 5. Check settings on LUB-D

Check the required values for the lubrication point at the factory settings of LUB-D and adjust them if necessary.

## 5. Operation

### 5.1 Pin assignment



Assignment		
PIN	Assignment	Colour
1	+24 V DC	brown
2	Input Signal PLC→LUB-D	white
3	Masse (GND)	blue
4	Output signal	black

Type: M12x1 female connector; 4-pin, A-coded

To electrically connect LUB-D to the PLC of your machine the device provides a 4-pin interface which is designed as a standard industrial M12x1 plug connection.