

User Guide

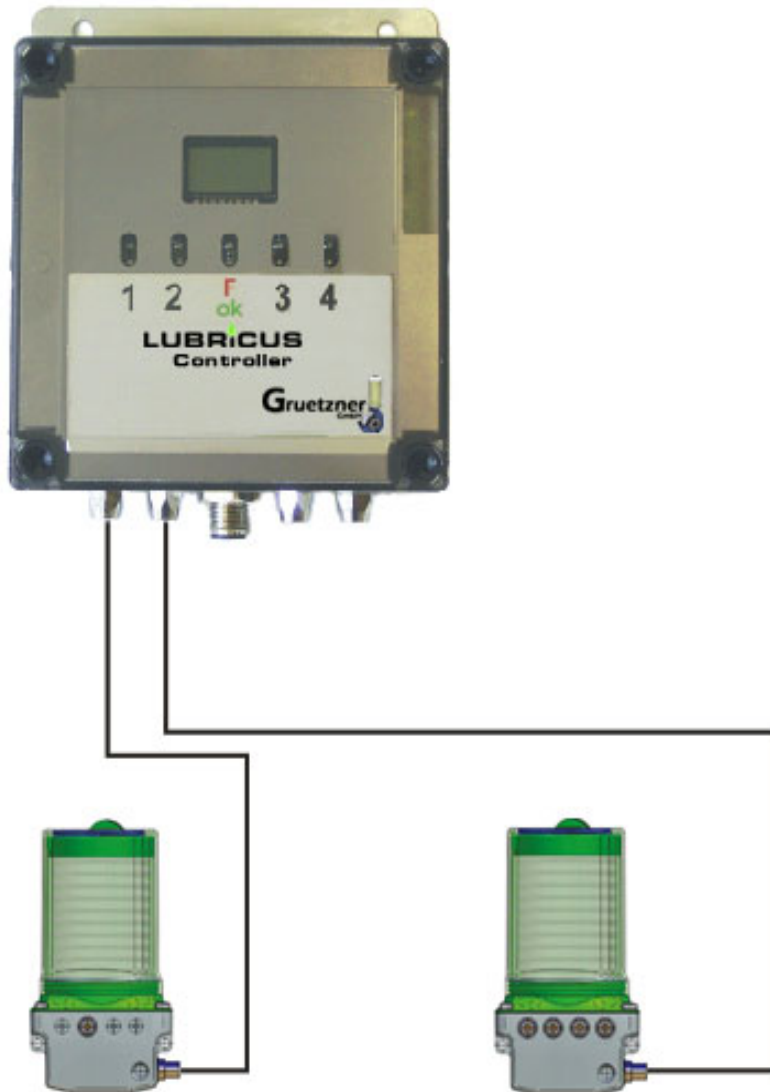
**Lubricus Controller**

**LUB-C-1, LUB-C-2,**

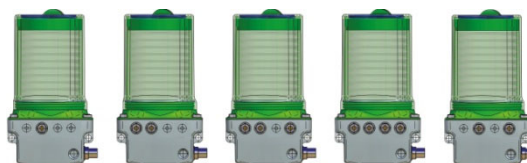
**LUB-C-3, LUB-C-4,**

**LUB-C-1-1**

(24 VDC)



Lubricus Type C



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**General Information**

Thank you very much to have decided to use our Lubricus Lubrication System and Lubricus Controller. Make sure that you familiarize yourself with the safety instructions of this unit and the accessories supplied with this unit. This manual contains important safety information.

The Lubricus Lubrication System is a very compact lubrication pump for oil and grease up to NLGI 2. The types LUB-C-1, LUB-C-2, LUB-C-3, LUB-C-4 and LUB-C-1-1 are designed for external control (Lubricus Controller) and a power supply of 24 VDC. The lubricant reservoir (400 cm<sup>3</sup>) is located in a cartridge.

- Lubricus Lubrication System (Type LUB-C-1, LUB-C-2, LUB-C-3, LUB-C-4, and LUB-C-1-1) will be installed near the lubrication point
- Lubricus Controller (System Control) will be installed in a central location

Depending on the configuration of Lubricus Lubrication System, Type C is available with up to four outlets and therefore suitable to lubricate several lubrication points.

**Warning**

Lubricus Lubrication System is designed for use in normal industrial environment indoor as well as outdoor but is not suitable for mounting on moving equipment for example trucks. Only use original Lubricus cartridges and original spare parts. None original spare parts can destroy the Lubricus Lubrication System or the Lubricus Controller.

**Scope of supply**

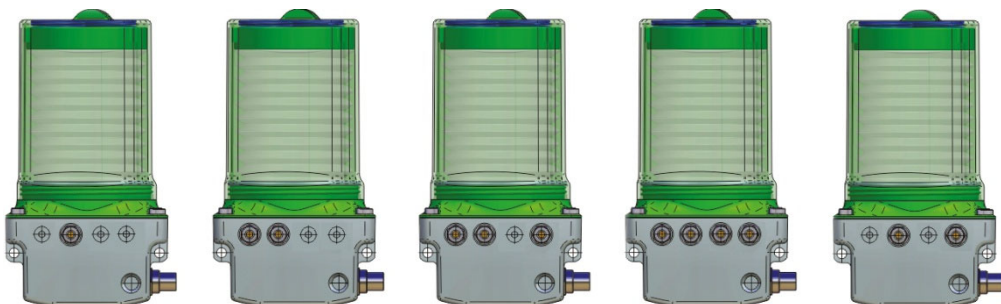
Standard delivery Lubricus Controller includes:

- Lubricus Controller
- Operating Instructions

Standard scope of supply Lubricus Lubrication System, Type C:

- Lubricus Lubrication System, (Type LUB-C-1, LUB-C-2, LUB-C-3, LUB-C-4, LUB-C-1-1)
- Tube connector attaches to the outlet, suitable for flexible tube 6 x 4
- Operating Instructions

Lubricus Lubrication System, Type C



LUB-C-1

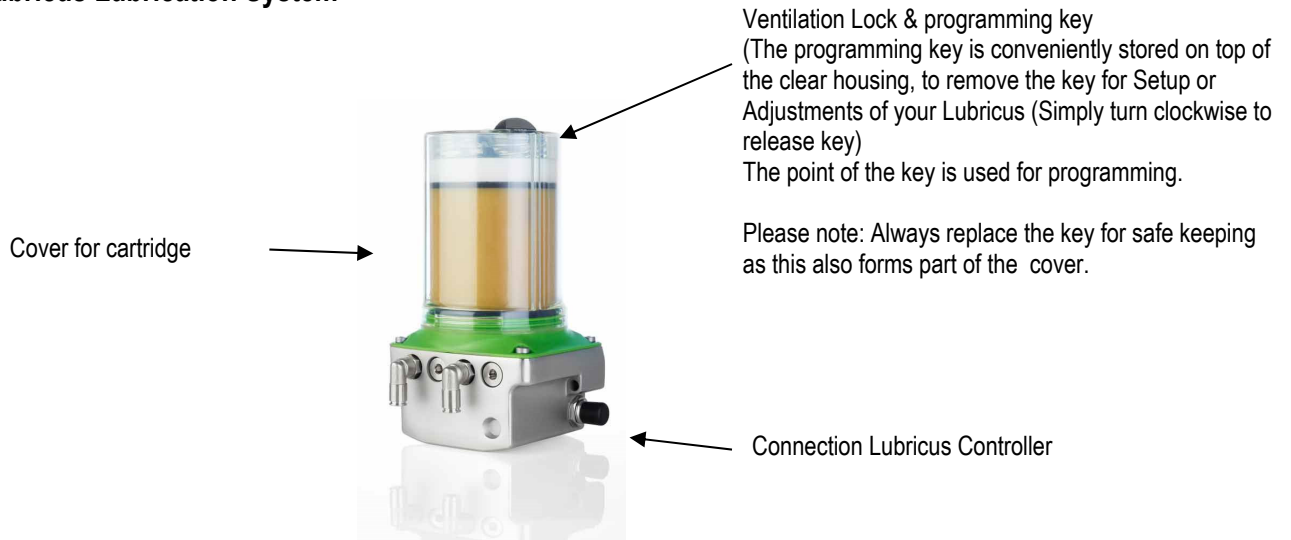
LUB-C-2

LUB-C-3

LUB-C-4

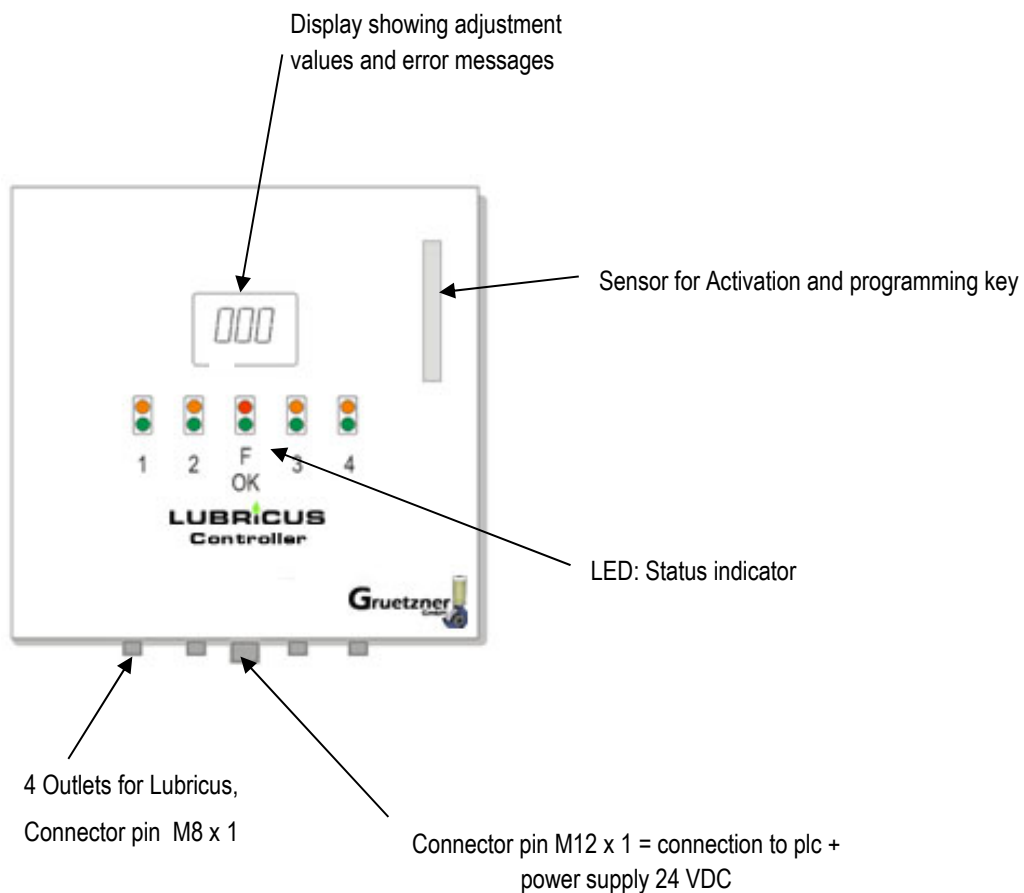
LUB-C-1-1

### Lubricus Lubrication System



**Important remark: unused exits cannot be closed and must remain open to avoid damage to the Lubricus Lubrication System!**

### Lubricus Controller



## General safety details

Everybody who is involved with the installation, start-up, maintenance and operation of the Lubricus Lubrication System must read these instructions carefully!

### Use in accordance with guide

#### Attention

Lubricus Lubrication System is **only** allowed for **industrial use**.

Lubricus Lubrication System may only be put into service, if it is integrated or attached to another machine and will be operated together with that machine.

Lubricus Lubrication System may only be used according to the technical data (see chapter "technical data").

Unauthorized **structural changes** at the Lubricus Lubrication System are **not permitted**. We do not assume liability for damages of persons or machines which result from that.

#### Attention

**Other uses or uses beyond those described above cannot be considered to be in accordance with the regulations.**

### Extent of warranty

Warranties concerning operating safety, reliability and capacity, are only granted under the following conditions: Assembly, installation, maintenance and repair are only carried out through trained specialist. Hazardous hot or cold machine parts must be shielded to prevent touching.

Lubricus Lubrication System must be used according to the instructions in the technical operating manual

- the rated technical data must not be exceeded in any case.
- Retrofitting and repair work on the Lubricus Lubrication System may only be done by manufacturer.

### Liability and extent of guarantee

Proper functioning of the Lubricus Lubrication System can only be achieved through use of recommended lubricants from the **original Lubricus range of accessories**, and by observation of all installation, operation and maintenance instructions.

Gruetzmer GmbH excludes all liability if these instructions are not observed.

Gruetzmer GmbH grants guarantees concerning operating safety, reliability and performance only under the following conditions:

- assembly, installation, maintenance and repairs are carried out by qualified staff only;
- hazardous hot or cold machine parts must be shielded to prevent skin contact;
- the Lubricus Lubrication System must be used according to the Technical Data and instructions;
- the limit values stated in the Technical Data are under no circumstances to be exceeded;
- retrofitting and repair work on the Lubricus Lubrication System may only be carried out by the manufacturer;
- the lubrication system must be protected against damp and wet.

If a lubricant that has not yet been tested for compatibility with the Lubricus Lubrication System be supplied or requested for use in the Lubricus Lubrication System by the purchaser/customer, the purchaser/customer undertakes the risk and responsibility.

This product is subject to strict production controls and fulfils our company's factory specifications. However, guarantee of testing of each individual case cannot be given due to the numerous factors involved.

**We therefore strongly recommend that test runs be carried out.**

All liability is excluded.

The Lubricus Lubrication System lubricant cartridge has been constructed and produced for **one-time use** only. Multiple use of the lubricant cartridge is not envisaged. After being used once, the lubricant cartridge is to be completely replaced; refilling is not permitted. Noncompliance will lead to nullification of the guarantee.

For guarantee conditions see the sales and delivery conditions of Gruetzmer GmbH

## General safety information

Basic information, which must be followed during service, operation and maintenance, are listed as follows.

It is absolutely essential to read the operator's manual / user guide by respective technical staff / technical operator before installation and start up.

In addition to this, it must be permanently available at the site.

## IMPORTANT

Please pay attention, not only to the safety instructions under this main point, but also to those special security cautions that are mentioned on the other pages.



This symbol warns of electrical voltage.



Safety instructions which, if not complied with, may endanger persons, are marked specifically with the general hazard symbol.

### Attention

This heading is used if inaccurate compliance or non-compliance with the operating Instructions or specified work procedures etc. may result in damage.

### Remark

Points out special information.

**Notes attached directly on the machine, must be strictly followed and maintained in completely readable condition!**

## Qualification and training of the personnel



The operation, maintenance, service and installation personnel must have appropriate qualifications for this work. Responsibility and supervision of the personnel must be clearly defined by the end user / operator. If the personnel do not have the necessary knowledge, they must be trained and instructed. The operator must ensure that the personnel have completely understood the contents of the user information.

## Non-observance of the safety information can be dangerous



Not observing the safety information can lead to danger for people, environment and machines. Not observing the safety information can mean the loss of any or all damage claims. In special cases, non-observance can, for example, lead to the following dangers:

- Failure of important plant functions.
- Failure of prescribed methods of maintenance and preventive maintenance.
- Endangering people due to electrical, mechanical and chemical effects.
- Endangering the environment due to leaks of dangerous materials.

### Safety information for operators/operating staff



- Hot or cold machine parts are hazardous and must be protected from touching. The protection on "moving or rotating parts" must not be removed.
- In case of leakages of dangerous media proper disposal not endangering environment and people must be ensured.
- Legal Regulation must be observed and complied.  
Eliminate any danger due to electrical power.

### Safety information for maintenance, inspection and assembly work



All **maintenance, inspection and installation work** may only be carried out by **trained specialists** who have been informed appropriately by studying the user information closely.

**All work** must only be carried out when **machine is shut down** and while wearing appropriate **protective clothing**. Always comply with the procedures for shutting the machine down that are described in the operating manual. All the safety and protective equipment must be replaced immediately after completing work. Environmentally hazardous substances that endanger the environment must be disposed in accordance with local regulations. Secure the system during maintenance and repair work, against intentional or unintentional operation. Dispose of used lubricants in accordance with the safety data sheets of the lubricant manufacturer.

### Alterations and manufacture of spare parts without authority



Rebuilding or altering the Lubricus Lubrication System is only allowed after consultation with the manufacturer. **Original spare parts** and accessories authorized by the manufacturer are for **safety** purposes. Using other parts results in loss of liability for claims resulting out of this. For components, retrofitted by the operator, the manufacturer does not assume guarantee nor claims for damages.

### Prohibited methods of operation

Operational security of the Lubricus Lubrication System is only guaranteed if it **is operated in accordance with the operating instructions**. The limit values stated in the technical data must not be exceeded under any circumstances.

### General risk reference



All components of the system are designed in accordance with the prevailing regulations of the construction of technical machines, in regards to operational safety and accident prevention. Operation outside of these constraints can lead to dangers for the user respectively third persons or other technical facilities. The Lubricus Lubrication System therefore may fulfil only in **technically fault-free condition** its intended use. This may only be carried out under compliance of the safety regulations and the attention of the operator's manual.

Therefore please **regularly inspect** the pump and its attachments for possible **damage or leaks**.

### Transport and storage

Use suitable lifting gear for transport.

Do not throw or expose the Lubricus Lubrication System to strong shock loads.

Store the Lubricus Lubrication System in a cool and dry place to avoid corrosion of the system's individual parts.



Pay attention to the current safety- and accident prevention instructions during the transport. Wear suitable protection equipment if necessary!

## Installation instruction



The following conditions have to be satisfied during the installation of this Lubricus Lubrication System, thus it can be assembled, with other parts, to a complete machine without affecting the safety and health of humans.

**The housing of the Lubricus and/or Lubricus Controller should not be exposed to direct sunlight and/or radiant heat preventing the formation of condensation.**

## Electrical connection



- Have the electric power supply connected only by a trained electrician!
- Connection and wiring of the electric components should be done by an expert trained in this field.
- Check the voltage details with the existing power supply voltage!

## Maintenance /repair



Disconnect the voltage feed, before starting with **maintenance or repair**.

**Maintenance and repair** work may only be done with the system shut down.

Check the surface temperature of Lubricus Lubrication System, due to danger of burning by radiant heat. Always wear heat-resistance gloves! Protect the system from activation during maintenance and repair work!



## Function/Principle

When activating the Lubricus Lubrication System the piston pump starts to work and pumps the lubricant in small quantities to the outlets. The integrated microprocessor controls the delivery rates and the operating time, which can be individually set.

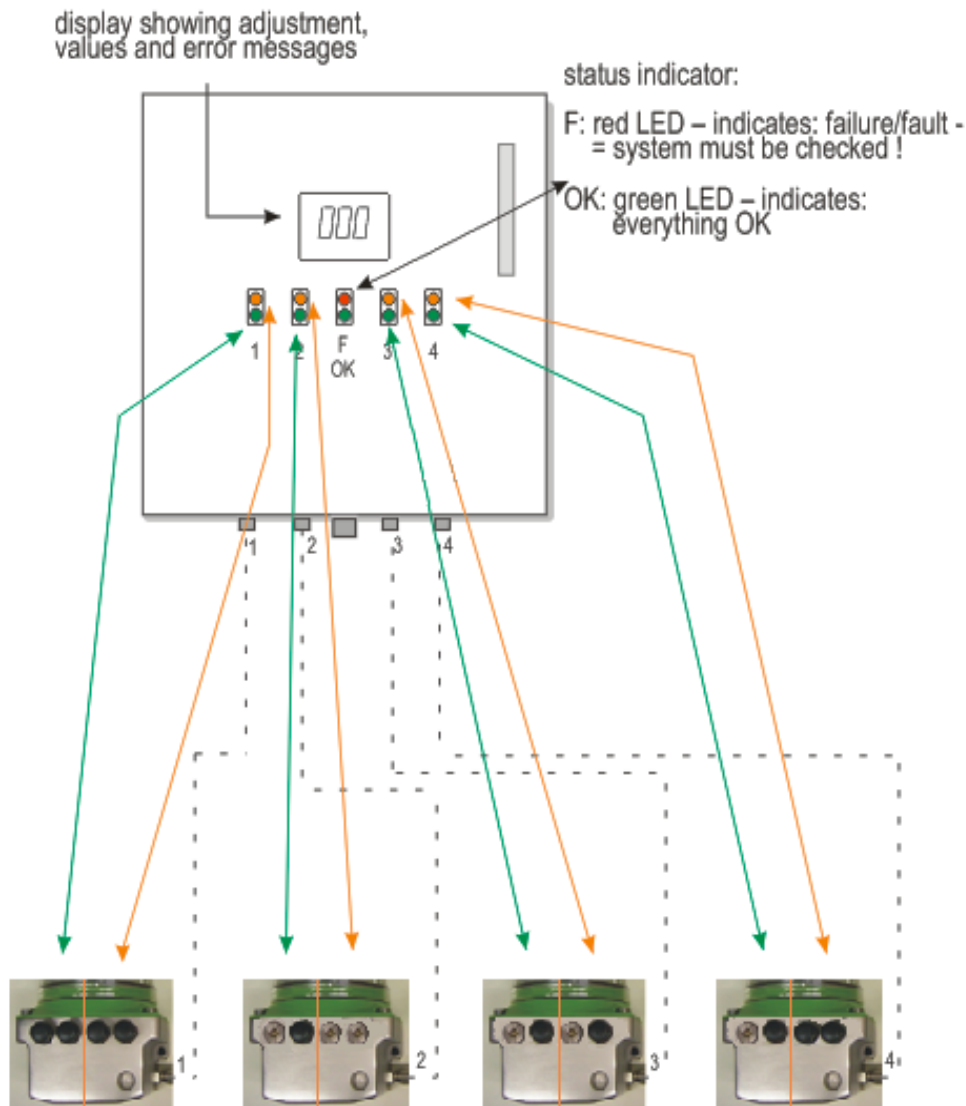
### Lubricus Controller Installation:

- Observe the safety instructions
- Lubricus will be installed near the lubrication point
- Install Lubricus Controller in a central location
- Connect cable
- Switch on

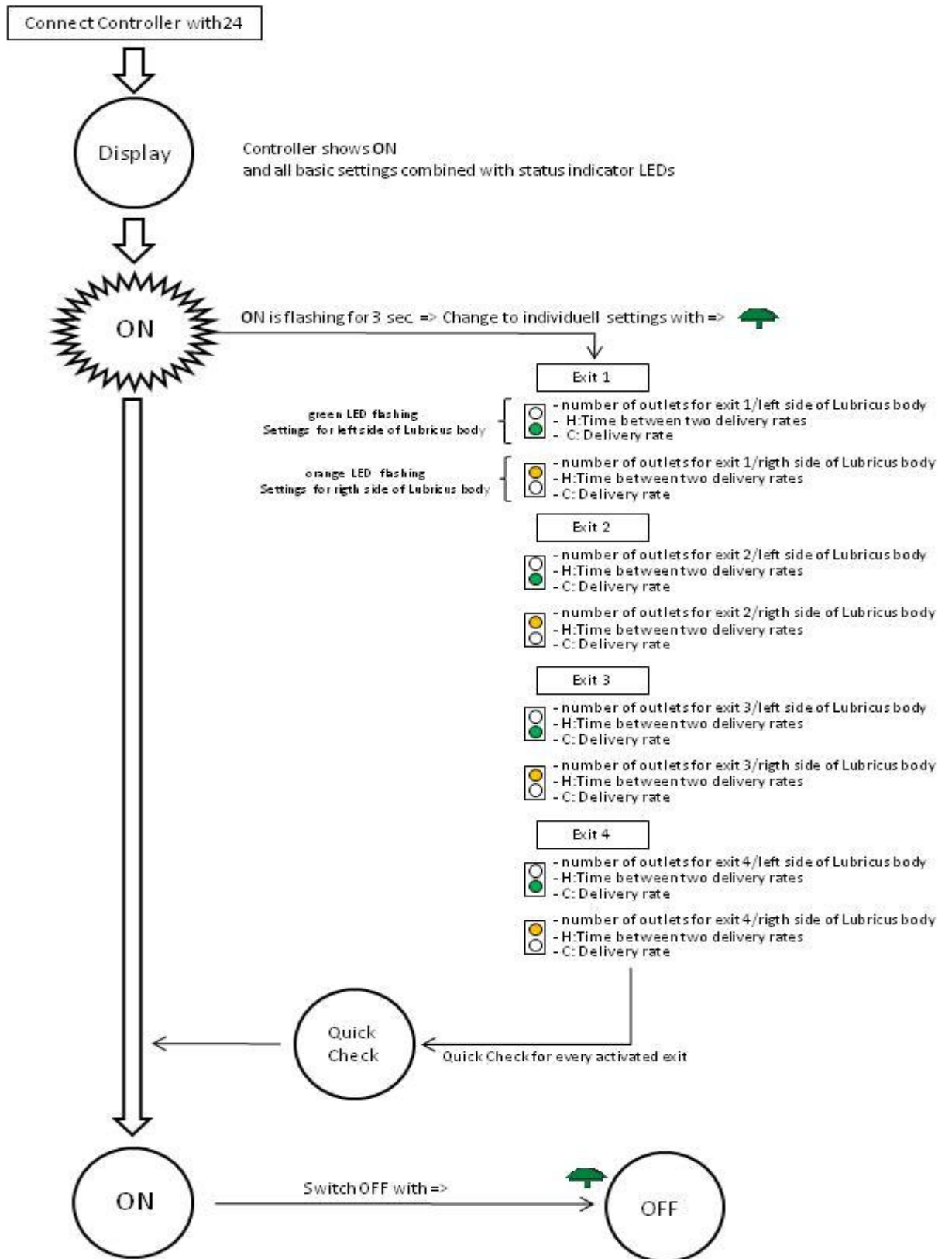
=> Finished

### Lubricus Controller settings:

- The programming mode enables:
  - => Entering the quantity of exits per Lubricus (page 12 and page 13-14, specific settings)
  - => Entering pause time (=Time between 2 lubrication intervals, page 12: table pause time adjustment)
  - => Entering the lubrication quantity per interval (page 12, table quantity adjustment)



Adjustment Flow chart





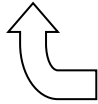
**Typ LUB-C-3**

adjustment at green LED / left Lubricus body 1 exit = A01

adjustment at orange LED / right Lubricus body: 2 exits = A02



Left exit individual controlled



Right side of Lubricus body (2 outlets) is dispensing equal quantity.

**OR**

**Typ LUB-C-3**

adjustment at green LED / left Lubricus body: 2 exits = A02

adjustment at orange LED / right Lubricus body: 1 exit = A01



Right exit individual controlled.



Left side of Lubricus body (2 outlets) is dispensing equal quantity.

**Typ LUB-C-4**

adjustment at green LED / left Lubricus body: 2 exits = A02

adjustment at orange LED / right Lubricus body: 2 exits = A02



Left and right side of Lubricus body is individual controlled.

Mix of 2x different dispensing quantities.



Right side of Lubricus body (2 outlets) is dispensing equal quantity.



Left side of Lubricus body (2 outlets) is dispensing equal quantity .

**Typ LUB-C-1-1**

adjustment at green LED / left Lubricus body 1 exit = A01

adjustment at orange LED / right Lubricus body: 1 exit = A01



Left and right side of Lubricus body is individual controlled

## 1.2. Inputting the generation of the Lubricus C devices used

For all Lubricus controllers => identified by

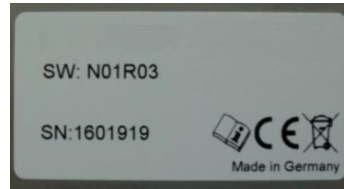
A) the release number n01 r03 for the software used indicated on the LCD display when switching on the Lubricus controller for the first time,

B) a serial number, SN, greater than 1601919,

C) the inscription SW: N01R03 on the name plate,

D) an illuminated LCD display,

the generation of the Lubricus C lubrication systems used is entered via the parameters Pu1 and Pu2 after entering the number of outlets!



If your Lubricus controller **does not have any of these features**, please continue inputting the settings by selecting the pause time, H, as described under point 2.

All of the latest generation of Lubricus C lubrication systems, which can be identified by a serial number, SN, greater than 1601909, belong to the Pu2 generation!

If the Lubricus C lubrication system connected to the Lubricus controller belongs **to the latest generation, Pu2**, no changes need to be made to the Pu parameter on the controller, as all Lubricus controllers with n01 r03 software are set to the **PU2 generation** on delivery. In accordance with this, **Pu2 is shown on the display**. After approx. 4 seconds, the display automatically jumps to the next menu item, setting the pause time, H, as described further under point 2.

All Lubricus controllers with the n01 r03 software are set to the PU2 generation on delivery.

If the Lubricus C lubrication system connected to the Lubricus controller belongs to the Pu1 generation (serial number, SN, smaller than 1601909), the parameter on the Lubricus controller **must be modified** as follows:

to change the parameter from Pu2 to Pu1, touch the sensor area on the Lubricus controller with the activation key within approx. 4 seconds of the PU2 indicator on the LCD display lighting up. The indicator on the display will change to Pu1 and will then automatically jump to the next menu item (setting the pause time, H) after approx. 4 seconds.

This parameter must be changed from Pu2 to Pu1 on the Lubricus controller for all Pu1 generation Lubricus C devices and for all existing pump units (left side of the housing / green LED; right side of the housing / orange LED).

## 2) If exits are activated (A01 or A02), each side of Lubricus body half can be adjusted:

**H = Pause Time =>**

Time interval between 2 lubrication intervals (1 to 96 h possible)

**than**

**C = Lubrication quantity per interval =>** (1 x 0,15 cm<sup>3</sup> to 30 x 0,15 cm<sup>3</sup> = 4,5 cm<sup>3</sup> possible)

**H = Pause Time**

|  |  |    |    |    |     |
|--|--|----|----|----|-----|
| <b>H: Adjustment for<br/>Lubricus – 1 side of body</b> | <b>H (Pause Time) adjustment = Time between 2 lubrication intervals<br/>(1 to 96 h possible)</b> |    |    |    |     |
| <b>H: Pause Time (hours)</b>                           | 1  | 12 | 24 | 48 | 96  |
| <b>Result: Lubrication cycles per exit per month</b>   | 720  | 60 | 30 | 15 | 7,5 |

Intermediate steps are possible.

**C = Lubrication quantity per interval**

|  |   |                     |                    |                    |                    |
|--|---|---------------------|--------------------|--------------------|--------------------|
| <b>C: Adjustment for<br/>Lubricus – 1 side of body</b> | <b>C (number of strokes) adjustment<br/>= delivery rate of one period</b> |                     |                    |                    |                    |
| <b>Number of strokes</b>                               | 1   | 5                   | 10                 | 20                 | 30                 |
| <b>Delivery rate<br/>of one period</b>                 | 0,15cm <sup>3</sup>   | 0,75cm <sup>3</sup> | 1,5cm <sup>3</sup> | 3,0cm <sup>3</sup> | 4,5cm <sup>3</sup> |

Intermediate steps are possible.



- (4) Basic adjustment will be changed when display blinks "ON": touch the sensor area with the activation and programming key, approx. 2-3 sec and hold until the display "On" disappears (red LED), then remove programming key:

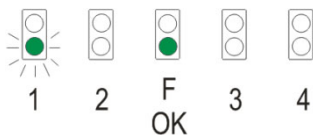
**Should you have missed the time when „On“ was blinking**, place programming key on sensor and hold until you see a 3 x red blinking signal (red LED) OFF in display. To switch Unit ON **place** programming key on sensor and hold until you see a 3 x red blink signal (red LED) ON in display.

**Programming for each Controller exit:**

The programming mode enables:

1. Entering the quantity of exits per Lubricus unit, page 10-11, specific settings (if no exit is activated = A00 -> 2. and 3. are not available!)
2. Entering H: Pause Time (= Time between 2 lubrication intervals, page 12: table pause time adjustment)
3. Entering C: the lubrication quantity per interval, (page 12, table quantity adjustment)

- a) Lubricus Controller Exit 1, green LED is blinking (-> left side of Lubricus body)



- Display shows A00: Enter required pump exits as per your attached Lubricus Model, page 10-11

Example: Lubricus LUB-C-2: Adjustment at green LED / left side of Lubricus body: 2 Exits= A02

Touch sensor shortly with programming key until required information is displayed. If there is no change the displayed value will be used.

- After the exit activation the parameters H and C need to be adjusted:

H: Pause time between 2 lubrication cycles, Input options: 1 to 96 (Values in h, Table page 12)

Short touch of the programming key on the sensor changes the value (1-96 are possible); Constant contact will let the display fast forward; short contact will advance values by 1. No activity for 2 sec through touching the sensor pad the displayed value will then be used and placed in memory. After a short time the unit will switch automatically to C.

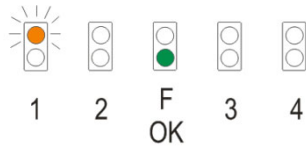
C: Number of cycles (Number of cycle's x 0,15cm<sup>3</sup> = lubrication quantity): Input options: 1 to 30 (table page 12).

Short touch of the programming key on the sensor changes the value (1-30 are possible); Constant contact will let the display fast forward; short contact will advance values by 1, no activity for 2 sec by touching the sensor pad the displayed value will then be placed in memory and will be used. This will finish the basic settings of Lubricus Controller Exit 1, left Lubricus body side, green LED.

- Automatic change to next Lubricus body half, on the same Lubricus Controller Exit

- b) Lubricus Controller Exit 1, orange LED is blinking (-> right side of Lubricus body)

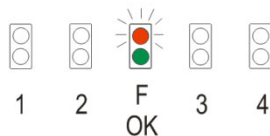




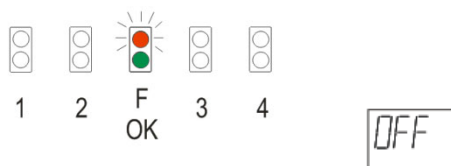
Same procedure like a) ...

- Automatic change to next Lubricus Controller exit 2, 3 and 4 see Adjustment Flow chart, page 9

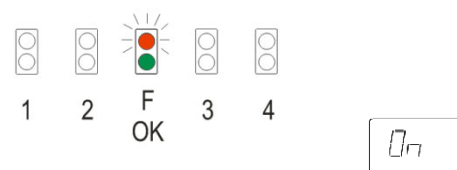
- c) If no further action the unit will continue in the operating mode. Place activation and programming key in ventilation hole and turn it from OPEN -> CLOSE
  - d) Lubricus Controller will initiate all activated exits. The display will change to "ON". An extra lubrication cycle of 0.15 cc per exit with back pressure measurement (Quick check) will be performed. A value that represents the pressure required to pump the lubricant to the lubrication point will be displayed. After the pump cycle is finished the max pressure is shown in bar, e.g. 015 represents 15 bar. The unit can only provide approximate values from + / - 15 %. This is accurate enough to establish the condition of the lubrication point.
- (5) **Additional functions: QuickCheck = extra dispensing cycle** (= pumping of small amounts of lubricant for testing purposes): **Touch** contact sensor of Lubricus Controller with programming key and count **2 x red blinking signal** (central LED in the display)



- (6) **Additional functions: Switch „OFF“:** **Touch** contact sensor of Lubricus Controller with programming key and count **3 x red blinking signal** (central LED in the display) and remove programming key. Display changes to "OFF". Adjustment stays in Memory. A longer contact of the programming key with the sensor does not switch the unit off preventing accidental stopping when a strong magnet is near the of Lubricus Controller.



- (7) **Additional functions: Switch „ON“:** To switch the unit "ON" **Touch** contact sensor of Lubricus Controller with programming key and count **3 x red blinking signal** (central LED in the display) and remove programming key. Display changes to "ON". Adjustment stays in Memory



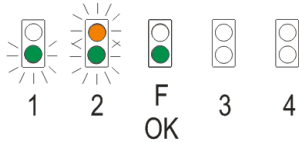
**Malfunction (error shown on LCD / LED)**

**“Normal“ operating mode:** Lubricus Controller display „ON“ each LED for activated pumps blink shortly one after each other in 1 second intervals. Not activated Lubricus Controller exits will not blink

Example:

Lubricus Controller exit 1: Lubricus LUB-C-2: Adjustment green LED / left Lubricus body: 2 exits = A02  
 Adjustment orange LED / right Lubricus body: 0 exits = A00  
 Lubricus Controller exit 2: Lubricus LUB-C-1-1: Adjustment green LED / left Lubricus body: 1 exit = A01  
 Adjustment orange LED / right Lubricus body: 1 exit = A01

Green LED for normal operating mode is always illuminated, LED's of Lubricus Controller exit 1 and 2 blink shortly one after each (green, green ,orange , and starting again from the beginning ...)



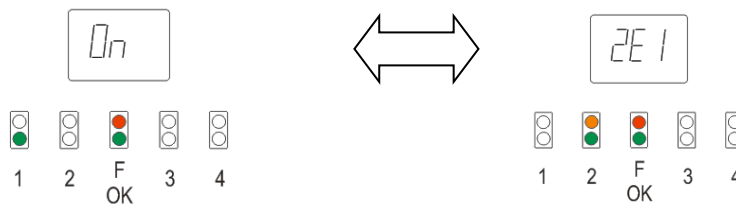
**Error messages / faults:** The dedicated error message for each connected Lubricus unit is displayed.

**E1: Empty lubricant reservoir:** red LED lights constantly + Display will show error for Lubricus unit connected to Lubricus Controller exit + E1, when the sequence of the connected pump with the error is reached. If the sequence reaches the units without error the display will show “ON”, the red LED will still light to signal that an error message exists.

Root cause: The lubricant cartridge is empty. The unit continues to be active and will pump!

Corrective action: replace cartridge. Lubricus will continue to run as per active program.

Example: exit 1, Lubricus LUB-C-2, all OK exit 2, Lubricus LUB-C-1-1, cartridge empty



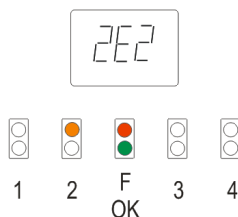
**E2: Back pressure too high:** red LED lights constantly + Display will show error for Lubricus unit connected to Lubricus Controller exit + E2; the error message is related to the Lubricus body half respectively to the Lubricus exit.

Root cause: Back pressure was measured 3 x too high. The lubrication point could be clogged, the tube length could be too long or the grease is too stiff or has hardened. Lubricus will stop!

Corrective action: Trace reason for high back pressure >70bar and correct it.

Switch unit „OFF“ and „On“ again. The error message will be reset to 0. Lubricus will start again as per program in memory.

Example: Exit 2, Lubricus LUB-C-1-1, Error 2E2 at exit 2 + orange LED / right Lubricus body half: exit1



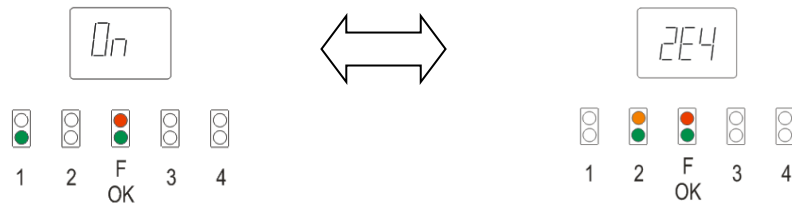
**E4: Lubricus-feedback:** Exit was activated, but no feedback from connected Lubricus unit: red LED lights constantly + Display will show error for unit connected to Lubricus Controller exit + E4; the red LED will light additionally to the green and orange LED when the sequence of the connected unit with the error is reached. If the sequence reaches the Lubricus units without error the display will show "ON", the red LED will still light to signal that an error message exists.

Root cause: The connection cable between Controller and Lubricus unit is broken, disconnected or missing. Lubricus Controller unit stays active and other connected units will dispense as per program in memory.

Corrective action: Change or connect cable (broken, missing or disconnected connection cable), Switch unit „OFF“ and „On“ again. The error message will be reset to 0. Lubricus will start again as per program in memory

Example: Exit 1, Lubricus LUB-C-2, all OK

Exit 2, Lubricus LUB-C-1-1, cable defect

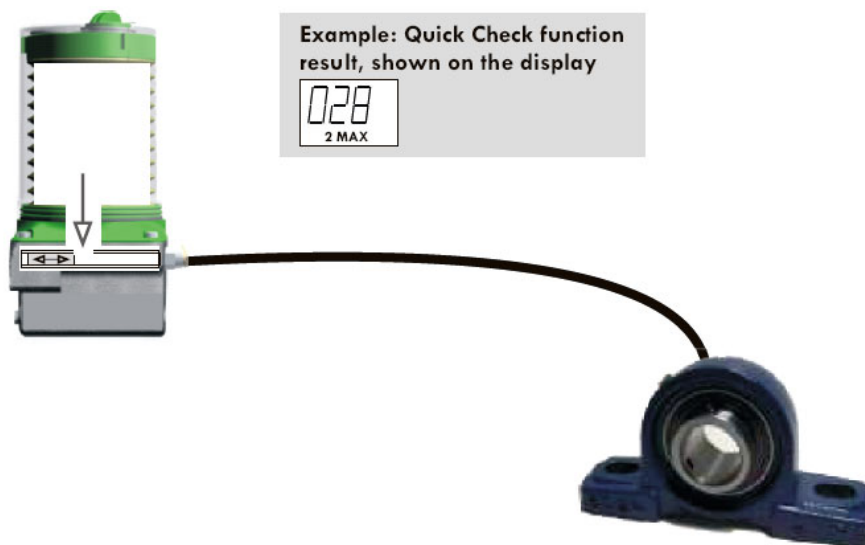


**System error:** Switch unit „OFF“ and „On“ again, Memory will not be erased.

**Extras:**

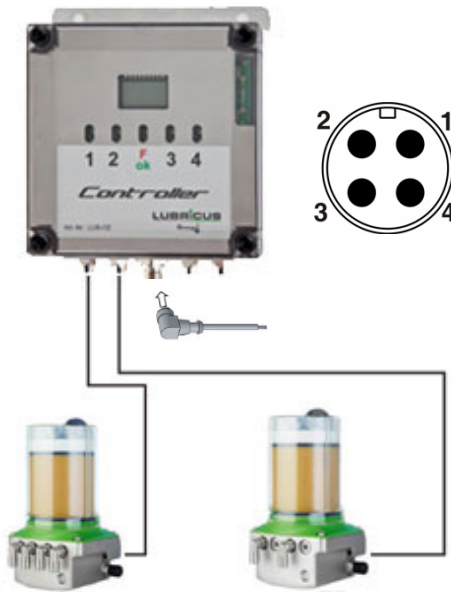
**”Quick check” back pressure measurement**

For testing purposes the Lubricus Controller is equipped with the “Quick Check” back pressure measuring function. **Quick Check back pressure measurement uses the extra lubrication cycle.** A simple touching of the programming key to the sensor pad will measure the existing pressure between the lubrication point and the pump unit exit. The value in bar will be shown in the display.



**Connector PIN assignment, connection Lubricus Controller to Lubricus Lubrication System, Type C**

The Lubricus Controller is equipped with a 4- pol M12x1 connector to connect to the controller of your machine for example a PLC. This connector supplies power to the Lubricus units and communicates with the controller. The voltage to operate and to switch unit "ON" and "OFF" is +20...+30 VDC (PIN 1). The Controller will be in operating mode when voltage is present. The green LED is illuminated. The supply voltage will be switched to exit (PIN4) if there are no errors (Unit OK). The Controller will save the current operating parameters in memory if the supply voltage is disconnected or unit is switched "OFF". The unit will start again using the last parameters saved in memory. The operating status will be communicated via PIN 4 and will be displayed in the integrated display of the Lubricus Controller.



**Connector PIN assignment Lubricus Controller M 12 x 1**

PIN 1: input voltage +20...30 VDC, color brown

PIN 2: no assignment, color white

PIN 3: Ground (GND), color blue

PIN 4: Output Signal, color black

**Details:**

PIN 1: Peak current (24 VDC): I<sub>max</sub>, approx. 350 mA (during pump operation), typically < 200 mA, Standby current (standby mode) < 20 mA

Input Signal can switches ON and OFF

PIN 2: no assignment

PIN 3: Ground (GND)

PIN 4: High = operating mode (=OK) = input voltage, Low = 0 V = error (type of error shown in display of Lubricus Controller), the outlet signal, PIN4, can be charged with maximal 300mA. Warning: the exit is not short-circuit proof

**Connection Lubricus Controller - Exit M8x1, 4-pol - to Lubricus, Typ C – Exit**

- a) M12x1, 4-pol. All special cables are available on stock in our catalogue
- b) If customer is managing all the necessary cabling, required to keep the system functional:

Lubricus Controller M8: PIN 1 to Lubricus unit, Typ C, M12: PIN 1

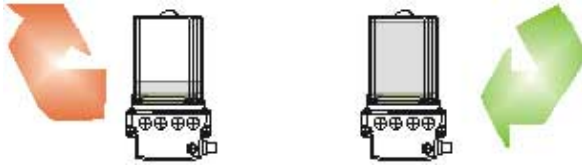
Lubricus Controller M8: PIN 2 to Lubricus unit, Typ C, M12: PIN 2

Lubricus Controller M8: PIN 3 to Lubricus unit, Typ C, M12: PIN 3

Lubricus Controller M8: PIN 4 to Lubricus unit, Typ C, M12: PIN 4

**Service: replacement of cartridge: Lubricus , Type C, modell with cartridge**

(error report: E1, empty cartridge)



1. Observe the safety instructions. Switch off Lubricus Controller

2. Take out ventilation locking (turn clock wise to OPEN)



3. Press the housing, turn left and remove it



4. Remove the empty cartridge.



5. Remove protection from the new cartridge



6. Lubricate O-Ring of the new cartridge slightly.

7. Place the cartridge on the inlet



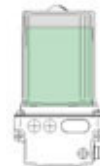
8. Place the pump upright on flat surface. Reinstall the housing by gently pressing while turning clockwise until hand tight.



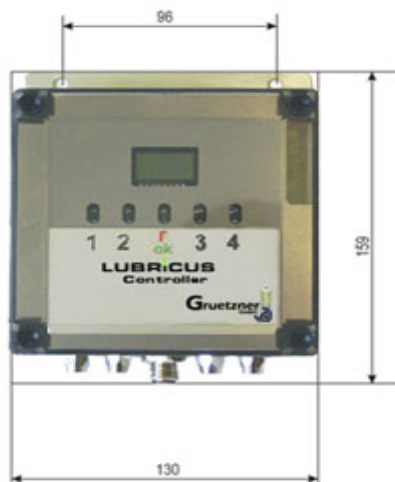
9. Install the ventilation lock and close it (turn counter clockwise to CLOSE)



10. Pump will work again according to settings, error report will be deleted

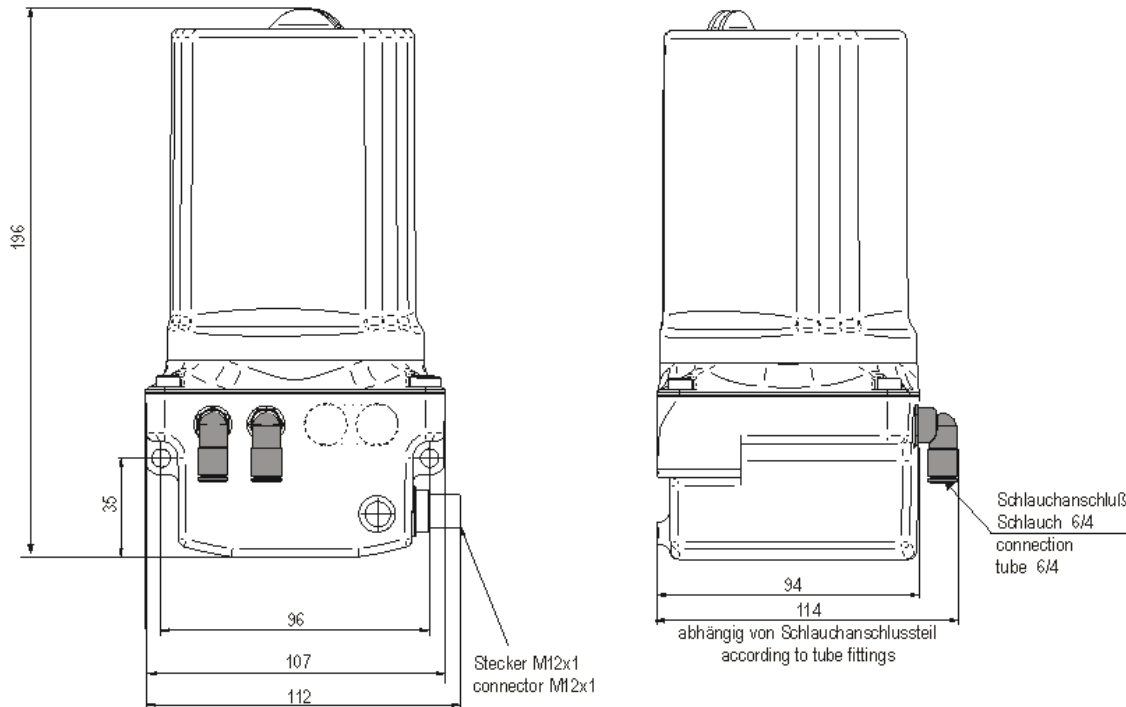


### Technical Data Lubricus Controller



|                                |  |
|--------------------------------|--|
| <b>Control:</b>                | micro processor controlled,<br>up to 4 Lubricus units Type C can be connected                            |
| <b>Power supply:</b>           | 24 VDC   |
| <b>Power consumption:</b>      | max 300mA, typical <200mA  |
| <b>Temperature range:</b>      | -20°C to +80°C   |
| <b>Dimensions, max.</b>        |  |
| <b>Width x height x depth:</b> | 130 x159x35 mm   |
| <b>Connector:</b>              | M12x1, 4-pole, power supply and connection to a PLC possible<br>Lubricus connection to Controller M8 x 1 |
| <b>Protection class:</b>       | IP 55  |
| <b>Mounting:</b>               | mounting wholes, Ø 6,6mm   |

## Technical Data Lubricus, Type C



|  |  |
|--|--|
| <b>Storage/volume:</b>                       | cartridge 400cm <sup>3</sup>   |
| <b>Lubricant:</b>                            | oil or grease up to NLGI 3   |
| <b>Function / principle:</b>                 | piston pump  |
| <b>Delivery rate per interval:</b>           | 0,15 cm <sup>3</sup>   |
| <b>Number of outlets:</b>                    | up to 4  |
| <b>Connection:</b>                           | high pressure tube 6 x 4 (flexible tube with outer diameter Ø 6mm outside and Ø 4mm inside diameter) |
| <b>Operating pressure</b>                    | max. 70 bar  |
| <b>Operating temperature:</b>                | -20°C to +80°C   |
| <b>Dimensions, max.,</b>                     |  |
| <b>Width x height x depth:</b>               | 112 x 196 x 94 mm  |
| <b>Weight, without lubricant:</b>            | 1120g  |
| <b>Control:</b>                              | Lubricus Controller  |
| <b>Level monitoring:</b>                     | integrated, reedcontact  |
| <b>Connector:</b>                            | M12 x 1, 4-pole for connection with Lubricus Controller  |
| <b>Protection class:</b>                     | IP 65  |
| <b>Combination with progressive systems:</b> | possible   |

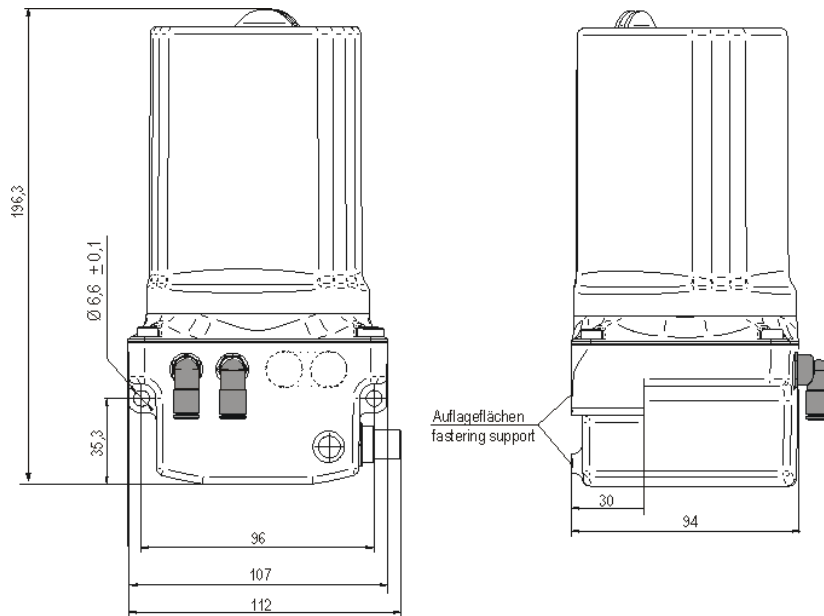
## Mounting Lubricus Controller

Mounting requires 2 screws for example M6. (not included).



### Mounting Lubricus unit

2 screws  $\varnothing$  6mm, for example M6x40 are required for a safe installation of your Lubricus. The optimum clamping force of the screw is 5 Nm. 3 points at the back assure a safe hold.





## Recommended tube length

- Keep in mind:
- For low temperature
  - For stiff grease, more than NLGI 2
  - For difficult applications with high backpressure
- ➔ Shorten your tube as much as possible
  - ➔ Minimum inner diameter is 4mm Ø
  - ➔ Avoid reductions of the inner tube

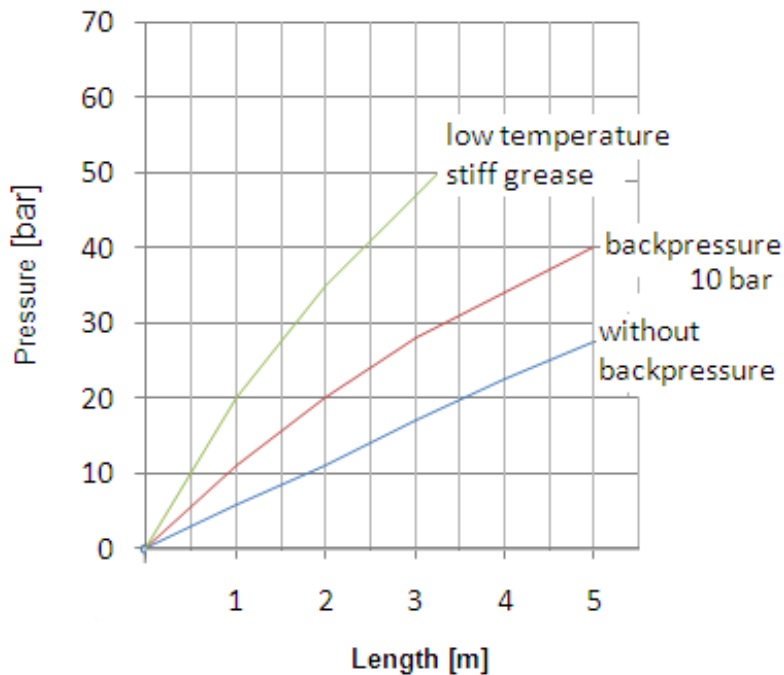


Chart: Required pressure vs. to tube length (tested with tubes 6 x 4 mm)

## Disposal

### Remark!

When disposing lubricant the waste disposal instructions of the lubricant manufacturer must be observed!

Disposal of Lubricus Lubrication System: observe the regional valid laws and regulations.

**The empty lubricant cartridges contain lubricant remains!  
Please dispose with other oil contaminated garbage!**

### Gruetzner GmbH

Dagobertstr. 15

D-90431 Nürnberg

[info@G-LUBE.com](mailto:info@G-LUBE.com)

[www.G-LUBE.com](http://www.G-LUBE.com)

Tel.: +49-911-277 399 0

Fax: +49-911-277 399 99