



Operating Instructions for CLA Lubrication System

Operating Instructions for CLA Lubrication System

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Author: Anna Herzog

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Operating Instructions for CLA Lubrication System

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Operating Instructions for CLA Lubrication System

0.1 Introduction

Make sure that you read these Operating Instructions carefully before starting to work with the product. These Operating Instructions contain important information that you will need for setting up and operating the product. In particular, they describe the proper use of the product and protect against incorrect use, contain safety instructions that must be observed and warn of risks and hazards that can arise even when the product is used properly.

0.2 Basics

The iwis CLA lubrication system consists of an extremely compact lubrication pump for oil. The pump is designed for use with an external controller and a 24 VDC power supply. The available lubricant (500 ml) is stored in an oil reservoir. Supply pressures of up to 70 bar are possible.

Depending on the variant, the pump in the iwis CLA system has a maximum of four outlets and is therefore ideal for applications with a restricted number of lubrication points.

1.1 Warning

This pump is intended for use in normal industrial environments or in outdoor applications. However, it has not been designed for use in or at motorized vehicles.

1.2 Scope of supply

The scope of supply may vary depending on the country in question.

The standard scope of supply of the equipment is as follows:

- the lubrication pump
- the tube connectors mounted at the outlet (1 to 4 connectors depending on the hydraulic design) for a medium-pressure PA tube 3 (Ø 6 mm external diameter)
- Operating Instructions

At the customer's request, it is also possible to supply:

- Accessories (see section 7.2)

1.3 Labelling

The lubrication pump is uniquely identified by a label that provides a short description of the lubrication pump (type and serial number).

Operating Instructions for CLA Lubrication System

1.4 Overview of the CLA pump



NOTE: Unneeded outlets must not be closed off! Any outlets that have been closed off with plugs ex works must not be opened!

2.1. General safety instructions

All persons who are responsible for installing, maintaining and operating the system must read these Operating Instructions carefully before the CLA system is installed and taken into service at the machine!

2.2 Intended use

The iwis CLA lubrication system may only be used in industrial environments. iwis CLA may only be used in a way that respects the technical data (see section "Technical data"). Structural changes to the equipment by the owner or operator are not permitted. We will accept no liability for damage to machines or injury to persons resulting from any such modifications.

The correct usage of the device for its intended purpose also includes:

- Compliance with all the information given in the Operating Instructions.
- The conduct of all maintenance tasks.
- Compliance with all relevant regulations relating to occupational safety and accident protection during all lifecycle phases of the iwis CLA system.
- Possession of the necessary specialist training and the authorization of your company to perform the necessary tasks at the iwis CLA lubrication system.

CAUTION! Any use other than this or above and beyond this is deemed not to be the intended use.

Operating Instructions for CLA Lubrication System

Important instructions regarding intended use:



Never open the pump!

It is then no longer possible to reassemble it on-site and the warranty will be null and void!



Never remove a lubrication outlet from the pump or add a new one!



The lubricant dispensers must always be configured in advance! The warranty will become null and void if lubricant outlets are removed or added or if the pump is opened!

2.3 Scope of warranty

The manufacturer issues warranties in respect of operating safety, reliability and performance only subject to the following conditions:

Installation, connection, maintenance and repairs are performed only by authorized specialist personnel. If hot or cold machine parts represent a hazard then these parts must be secured on-site to prevent contact.

- The iwiss CLA lubrication system must be used in accordance with the instructions given in the technical data sheets.
- Under no circumstances may the limit values specified in the technical data be exceeded.
- Modifications and repairs to the iwiss CLA lubrication system may only be performed via iwiss antriebssysteme.
- This applies, in particular, to the opening and/or disassembly of the iwiss CLA pump and the removal of the tube connectors that are installed ex works.
- If the employed lubricant is not a standard lubricant listed in the current catalogue issued by iwiss antriebssysteme GmbH & Co. KG then it must have been approved by iwiss antriebssysteme.





Operating Instructions for CLA Lubrication System

2.4 Safety instructions

Basic information that must be adhered to during setup, operation and maintenance is indicated below. It is essential for the installer and the relevant specialist personnel/end user to read these Operating Instructions prior to installation and commissioning. The Operating Instructions must also be available at the place of use at all times.

Emphases

It is necessary not only to take account of the safety instructions given under this main heading but also of the special safety instructions that can be found elsewhere in the documentation.

Warning symbol	Meaning	
	WARNING	This symbol warns of the presence of electrical voltage
	SAFETY INSTRUCTIONS	The general hazard symbol indicates instructions regarding situations that can pose a risk to persons if the instructions are not adhered to.
	NOTE	This term is used to draw attention to special information. It is essential that instructions and information that are directly affixed to the machine are maintained in a complete and legible condition!
	CAUTION	This term is used to indicate that ignoring or failing to adhere precisely to the Operating Instructions, Work Instructions, specified working procedures, etc. can lead to damage to the system.

Qualification and training of the personnel



The personnel responsible for operation, maintenance, inspection and installation must be appropriately qualified for these tasks. The end user must define the precise competences, areas of responsibility and supervision of the personnel. If the personnel do not possess the necessary knowledge then they must be trained and instructed. The end user must ensure that the personnel fully understand the contents of the user information.

Qualification and training of the personnel



Failure to comply with safety instructions can cause risks to persons, the environment and the machines. Failure to comply with the safety instructions can result in the forfeiture of any and all rights to claims for loss or damage. More specifically, a lack of compliance may result in the following risks:

- Failure of important system functions.
- Ineffectiveness of prescribed maintaining and servicing methods.
- Danger to persons from electrical, mechanical and chemical sources.
- Environmental hazards due to the leakage of hazardous substances.

Operating Instructions for CLA Lubrication System

Safety instructions for the end user/operator



- If moving, rotating, hot or cold machine parts represent a hazard then these parts must be secured on-site to prevent contact by persons. This contact protection must not be removed in the case of moving or rotating parts.
- Leakages of hazardous media must be disposed of in such a way that no risk for persons or the environment arises.
- Legal regulations must be observed.
- Any hazards posed by electrical power must be eliminated

Safety instructions for maintenance, inspection and installation work



All maintenance, inspection and installation work must be performed exclusively by trained specialist personnel who have been adequately informed thanks to a detailed study of the user information. Work may only be performed with the system shut down and appropriate personal protective equipment must be worn. It is essential to adhere to the procedure for shutting down the system described in the Operating Instructions. All safety and protective equipment must be replaced immediately after completion of the work. Media that represents a hazard for the environment must be disposed of in accordance with the applicable official regulations. During maintenance and repair work, secure the system against intentional or unintentional reactivation. Auxiliary and operating materials must be disposed of in accordance with the lubricant manufacturer's safety data sheets.

Modifications and production of spare parts by the end user



Conversions of and modifications to the system are permitted only following consultation with the manufacturer. Original spare parts and accessories authorized by the manufacture contribute to safety.

The use of other parts may invalidate liability for any resulting loss or damage. iwis antriebssysteme provides no warranty and accepts no liability in respect of parts retrofitted by the end user.

Impermissible modes of operation

The operational safety of the system is guaranteed only if it is operated correctly for its intended use as described in the Operating Instructions. Under no circumstances may the limit values specified in the technical data be exceeded.

General note on hazards



All the components of the CLA lubrication pump are designed in accordance with the applicable regulations on the construction of technical systems with regard to operational safety and accident prevention. Despite this, their use may result in risks for the user and/or third-parties or other technical equipment. The CLA lubrication pump may therefore only be used to fulfil its purpose when in a technically faultless condition. It may only be used if the corresponding safety regulations are complied with and the Operating Instructions are adhered to. You should therefore regularly inspect the CLA lubrication pump and its attachments and check for possible damage or leakages.

Operating Instructions for CLA Lubrication System

3.1 Transport and storage

Use suitable lifting equipment during transport. Do not throw the CLA lubrication pump or expose it to hard impacts. Store the CLA lubrication pump in cool, dry premises in order to inhibit corrosion at the individual elements of the system.



During transport, comply with the relevant safety and accident prevention regulations. If necessary, wear appropriate protective equipment!

3.2 Installation instructions



The following conditions must be fulfilled when installing the CLA lubrication pump so that it can be combined with other parts to form a complete machine correctly and without jeopardizing the safety and health of persons:



Electrical connection

- The power supply may only be connected by a trained electrician!
- The system's electrical components must be connected and wired in accordance with professional standards.
- Compare the voltage specifications with the existing power supply voltage!

3.3 Commissioning



Maintenance

De-energize the system before performing any maintenance or repair work. All maintenance and repair work must be performed with the system completely shut down. It is necessary to check the surface temperature of the CLA lubrication pump because heat transfer causes a risk of burns. Wear heat-resistant safety gloves! Secure the system against reactivation during maintenance and repair work!

Commissioning the CLA lubrication pump



Under no circumstances may the transparent cover (lid) be removed. This will render the warranty null and void!



Never remove a lubrication outlet from the pump. The lubricant dispensers must always be configured in advance! Removing a lubrication outlet will render the warranty null and void!

Operating Instructions for CLA Lubrication System

3.3.1 Commissioning the CLA lubrication pump, PC – Pulse Controlled

<p>Step 1</p> 	<p>Filling the pump without connected tubes</p> <p>The oil is filled via the ventilation lock!</p> <p>Under no circumstances may the transparent cover (lid) be removed. This will render the warranty null and void!</p>
<p>Step 2</p> 	<p>Venting the pump without connected tubes</p> <p>The pump is vented by means of a 12-second high signal. This signal may have to be sent twice.</p> <p>The pump performs 40 strokes in immediate succession. This operation must be repeated once more because a total of approximately 80 strokes are needed in order to fully vent the pump.</p> <p>Lubricant must clearly emerge at all the outlets!</p>
<p>Step 3</p> 	<p>Connecting the pre-filled tubes</p> <p>Ideally, the tubes should be filled using a commercially available syringe.</p> <p>If the tubes are being shortened, note that it is always necessary to cut them at a right angle.</p> <p>Always use a tube cutter.</p> <p>DO NOT CUT USING A SIDE CUTTER OR KNIFE!</p> <p>Push the tubes on firmly until they reach the stop on the tube connector.</p>

Operating Instructions for CLA Lubrication System

Step 4



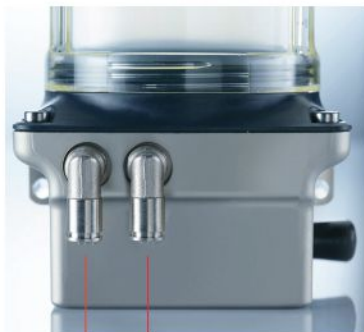
Distributor

Distributor

Venting the distributor

The pump must be run until lubricant clearly emerges at all the outlets on the distributor!

Step 5



Distributor

Distributor

Connecting the pre-filled tubes to the distributors

Operating Instructions for CLA Lubrication System

3.3.2 Commissioning the CLA lubrication pump, TC – Time Controlled



A built-in check valve protects the equipment against back pressure

Operating principle

- Install
- Connect
- Switch on
- Use the basic settings or:
 - Set the desired emptying time at the oil reserve (P1)
 - Set the desired dispensed amount per lubrication cycle (P2)

P1 (duration): In how many months (max. 36) should the oil reserve be emptied?

P2 (number of cycles): What quantity of lubricant should be dispensed per interval?

Additional features

Back pressure measurement using special dispensing operation: For test and trial purposes, the installed lubrication pump can be used to dispense small amounts of lubricant by means of a simple input operation. This makes it possible to determine the pressure present between the lubrication point and the lubrication pump. The displayed value corresponds to the back pressure in bars.

Setting options

The basic factory settings (P1: emptying time for the oil reserve, max. 500 ml and P2: desired lubricant quantity per interval) can be easily adapted to meet individual requirements.

Table: Duration and lubricant quantity per outlet under different settings (how often should lubrication take place and what quantities should be dispensed?)

Operating Instructions for CLA Lubrication System

CLA lubrication pump 2A 1PK (2 outlets):

Set P1 (duration) = Time to empty oil reserve (400 cm ³) in months							
Duration (months)	1	3	6	12	18	24	36
Result: Lubricant quantity per outlet per month (cm ³)	200	67	33	17	11	8	6
Set P2 (number of cycles) = Lubricant quantity per interval							
Number of cycles	1	5	10	20	30		
Lubricant quantity / interval (cm ³)	0.15	0.75	1.5	3.0	4.5		
Result: Number of lubrication intervals per outlet over the duration	1350	270	135	68	45		

Examples

Across the entire emptying time for a 400-ml oil reserve (=duration), the lubrication point (1 outlet) is supplied as follows: if P2 = 1, a total of 1350 times with 0.15 cm³; if P2 = 5, a total of 270 times with 0.75 cm³; if P2 = 10, a total of 135 times with 1.5 cm³; if P2 = 20, a total of 68 times with 3.0 cm³; if P2 = 30, a total of 45 times with 4.5 cm³, in each case dispensed at regular intervals. Intermediate values are also possible.

Using the table

1. Determining the duration: -grey area-

What quantity of lubricant should be supplied to the lubrication point per month?

This gives the emptying time (P1) of the oil reserve in months

Please note: (P1)

2. Determining the lubrication quantity per cycle: -blue area-

What quantity should be regularly supplied to the lubrication point?

This gives the number of lubrication intervals (P2) per duration.








Please note: (P2)

The total lubricant quantity during the duration is independent of the selected lubrication interval.





Operating Instructions for CLA Lubrication System

Switching on / switching off / modifying the CLA lubrication pump, TC – Time Controlled



	1. Open lock (=venting) and remove action pin (=ventilation lock). Turn in the direction CLOSE => OPEN
	2. To switch on , touch the action area with the action pin. Length of contact: wait for 3 red flashing signals (LED in display), then remove action pin.
   	3. "OFF" changes to "On" in the display: The basic settings and the operating voltage symbol are displayed. <ul style="list-style-type: none"> a) Display: 24 = 24 VDC b) Display A01 = 1 outlet or A02 = 2 outlets c) Display P1 emptying time of oil reserve (basic setting 12 months) d) Display P2 number of cycles (= number of pump strokes, at 0.15 cm³ per lubrication interval) (basic setting 1)
	4. "On" flashes for approximately 3 sec. in the display. If there is no action, operation continues at point 6. Screw action pin into ventilation hole and lock by turning in the direction OPEN => CLOSE
	5. To change the basic settings: while "On" is flashing in the display, hold the action pin against the action area and wait for 2 red flashing signals (LED in the display), then remove the action pin from the action display:

Operating Instructions for CLA Lubrication System

	<p>5. a) P1 emptying time: briefly touching the action area with the action pin changes the value (1 to 36 are possible); holding the pin down causes the display to scroll through the values, while short taps increment the value by 1. Enter the determined value by touching the action area with the action pin. If, after 2 sec., no further change is caused by touching the action area then the process rapidly automatically continues with P2</p> <p>a) P2 number of cycles: briefly touching the action area with the action pin changes the value (1 to 30 are possible); holding the pin down causes the display to scroll through the values, while short taps increment the value by 1. Enter the determined value by touching the action area with the action pin. If no further change is caused by touching the action area then the modification of the basic settings is complete and the values are stored in the equipment's memory.</p> <p>c) Lock the action pin in the ventilation hole, turn in the direction OPEN => CLOSE</p>
	<p>6. Display changes to "On", first dispensing of lubricant</p> <p>a) During the first two seconds of start-up, only a 1 or 2 is shown in the display together with the operating voltage symbol. 1 and 2 stand for the currently operative pump outlet. The green LED is lit all the time the motor is running!</p> <p>b) A number is then displayed. This indicates the pressure with which the lubricant is transported to the lubrication point. When pump operation terminates, the maximum measured pressure is output. The value is output in bars... 015 therefore corresponds to 15 bar. The equipment is only able to determine approximate values. However, the achievable accuracy of $\pm 15\%$ is perfectly adequate for assessing the situation at the lubrication points.</p> <p>c) The pump operates using the stored settings. LED, green, flashes every 60 sec.</p>
	<p>7. Special function: Special dispensing (= dispensing of small quantities of lubricant for test and trial purposes): touch the action area with the action pin. Length of contact: wait for 2 red flashing signals (LED in display), then remove action pin. Dispensing and display as in 6.</p>
	<p>8. Filling function: Venting the pump</p> <p>Touch the action area with the action pin. Length of contact: Wait for 7 red flashing signals (LED in the display), then remove the action pin. Each pump element is then addressed and additional dispensing operations are performed at each outlet. The pump body is vented.</p> <p>Outlet 1.1: $15 \times 0.15 \text{ cm}^3 = 2.25 \text{ cm}^3$ Outlet 1.2: $15 \times 0.15 \text{ cm}^3 = 2.25 \text{ cm}^3$</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">  CAUTION! The operation must be performed twice, i.e. must be repeated once, in order to turn the pump off completely. </div>
	<p>9. Switching off: Touch the action area with the action pin. Length of contact: Wait for 3 red flashing signals (LED in display). The display changes to "OFF". The settings are stored in memory. Prolonged touching of the action area with the action pin does not switch the device off. This protects against unintentional deactivation if a strong magnet is present close to the pump.</p>

Operating Instructions for CLA Lubrication System

Commissioning the PU applicators

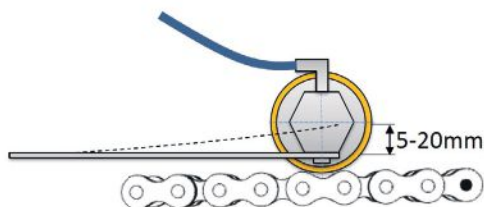


The lubricating rollers are not intended to be manually supplied with lubricant!



Prior to installation

- Under no circumstances may the lubricating rollers be operated dry!
- The lubricating rollers must be soaked in oil before commissioning.
- To do this, place the entire roller in an oil bath for a few minutes.



UNDER NO CIRCUMSTANCES MAY ANY PERMANENT IMPRESSIONS REMAIN ON THE SURFACE OF THE ROLLER!

The lubricating rollers should only gently contact the chain.

Ideally, the contact between the chain and the lubricating roller will be only strong enough to ensure that the roller turns together with the chain.

Pre-tensioning of the sprung metal sheet:

The pre-tensioning depends on the lubricant and on the speed of the chain. The roller must not slide.



The lubricating rollers must make uniform contact across the entire width and must roll precisely in the direction of the drive.

IF THEY ARE OUT-OF-TRUE, THEN THIS WILL CAUSE WEAR!

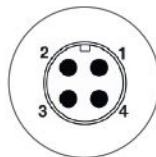
Operating Instructions for CLA Lubrication System

3.4 Principle

After the supply voltage has been applied and correct control is ensured via the PLC, the iwis CLA lubrication pump conveys the lubricant to the outlets. The external controller, e.g. PLC, controls and monitors both the set lubricant quantity and the time intervals between the lubrication operations.

For connection to your system's controller, e.g. PLC, each CLA lubrication pump possesses a 4-pole installation plug for connection to an M12x1 connector. This connector is used to communicate with the controller and provide the power supply. The voltage for operation and for switching the CLA lubrication pump on and off is +20...+30 VDC (PIN 1). When a voltage is applied, the lubrication pump is in its operating state. If there are no malfunctions (equipment OK), the supply voltage is applied to the output (PIN 4). Low signal indicates an error. If the voltage is switched off, the machine is in the idle state. When it is restarted (switched on again), operation resumes in the stored state. The operating state is output via PIN 4. An exact description of the input and output signals can be found in the separate document "Technical data sheet Software D2".

4.1 Communication interface and connection to the iwis CLA lubrication pump



4.1.1 PC Pulse Controlled

Connector assignment M 12 x 1

PIN 1: Input voltage + 20...30 VDC, colour: brown
 PIN 2: Control of the individual pump outlets, colour: white
 PIN 3: Output, ground (GND), colour: blue
 PIN 4: Output signal, colour: black

Details

Peak current I_{max} (during pump operation), approx. 350 mA, typical < 200 mA | Standby current (standby mode) < 20 mA | Output signal PIN 4:
 High (+ 20...30 VDC) = OK, LOW (0 V) = Error | Max. output current (at PIN 4) 300 mA; do not connect any inductive loads!

4.1.2 TC Time Controlled

Connector assignment M 12 x 1

PIN 1: Input voltage +20...30 VDC
 PIN 2: not used
 PIN 3: Output/ground (GND), colour: blue
 PIN 4: Output signal, colour: black

PIN 1: Peak current I_{max} , approx. 350 mA, typical < 200 mA
 PIN 2: not used
 PIN 3: Ground
 PIN 4: High = Normal operating state (= OK)
 Low = Error (the type of error can be read at the display)



CAUTION! Pay attention to the polarity, not short circuit-proof
 Protection using a 1A slow-blow fuse is recommended

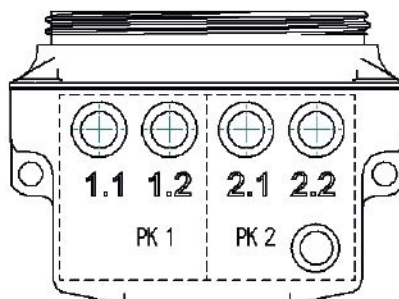
The general basic principles are presented on the next page as an overview.

Operating Instructions for CLA Lubrication System

4.2 Overview of types

Designation of the CLA lubrication pump and the relevant active designation of the active lubricant outlets

Designation	Pump type	Pump body PK1		Pump body PK2	
		Outlet 1.1	Outlet 1.2	Outlet 2.1	Outlet 2.2
CLA lubricant oil pump 1A 1PK 500 ml PC / TC	x	x			
CLA lubricant oil pump 2A 1PK 500 ml PC / TC	x	x	x		
CLA lubricant oil pump 2A 2PK 500 ml PC	x	x		x	
CLA lubricant oil pump 3A 2PK 500 ml PC	x	x		x	x
CLA lubricant oil pump 4A 2PK 500 ml PC	x	x	x	x	x



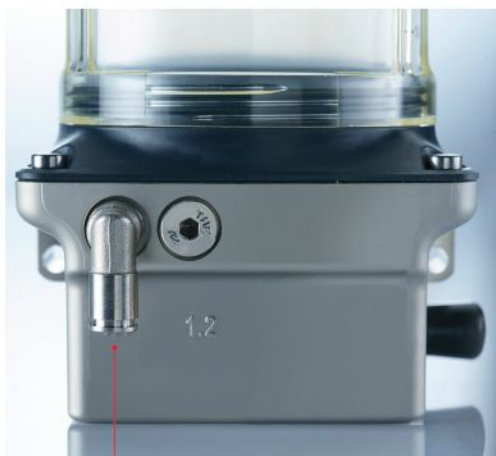
4.3 Designation of the pump outlets



Operating Instructions for CLA Lubrication System

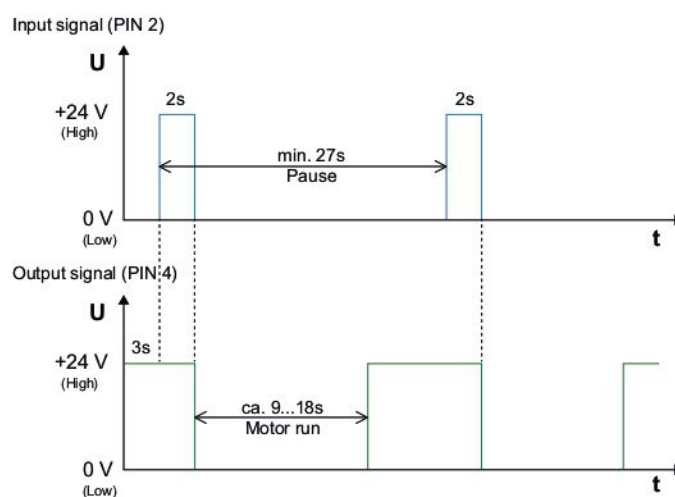
4.4 Details of the pulse signals used for control

Control of CLA lubricant oil pump 1A 1PK 500 ml PC

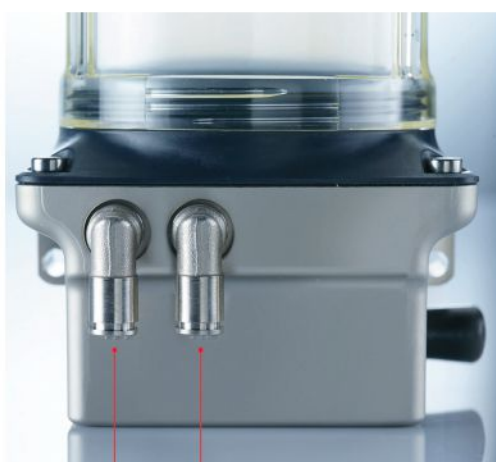


1.1

Outlet 1.1



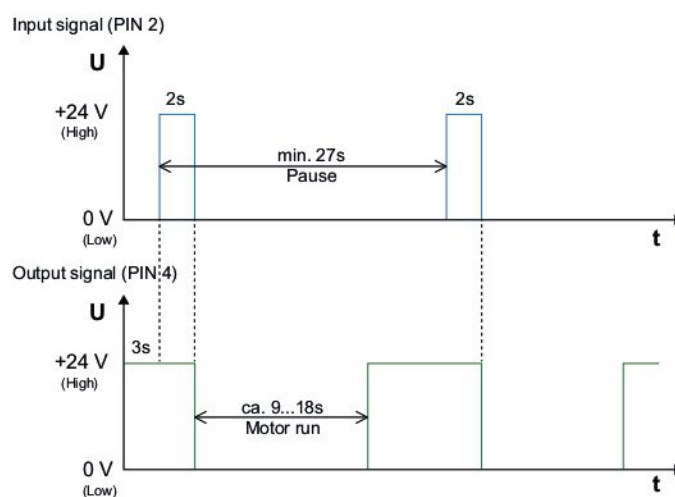
Control of CLA lubricant oil pump 2A 1PK 500 ml PC



1.1

1.2

Outlet 1.1 or 1.2



Outlet 1.1 and 1.2

If outlets 1.1 and 1.2 are to be addressed then the signal (2 sec.) must be sent twice. Note the pause times!

Operating Instructions for CLA Lubrication System

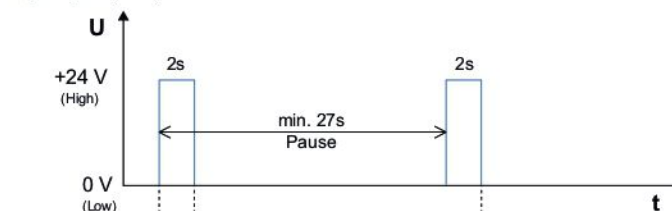
Control of CLA lubricant oil pump 3A 2PK 500 ml PC



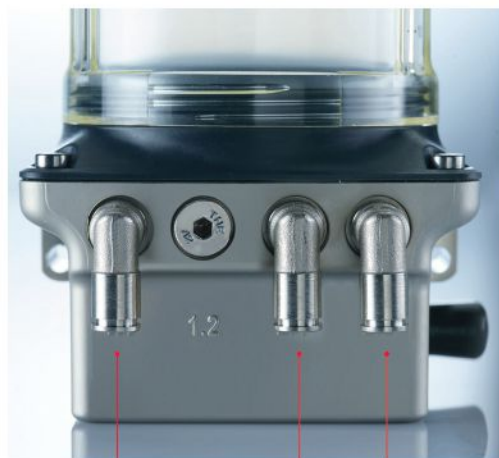
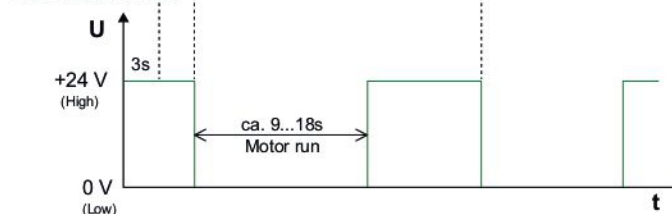
1.1

Outlet 1.1

Input signal (PIN 2)



Output signal (PIN:4)



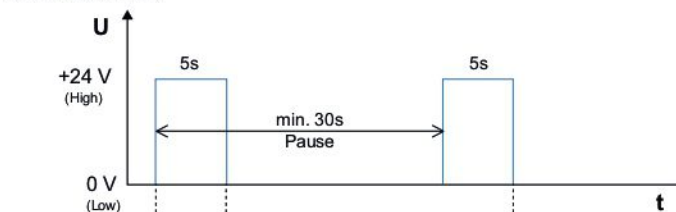
1.1

2.1

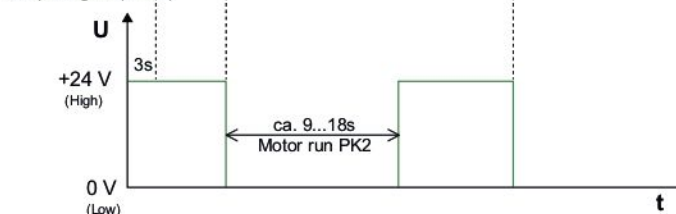
2.2

Outlet 2.1 or 2.2

Input signal (PIN 2)



Output signal (PIN:4)



Outlet 2.1 and 2.2

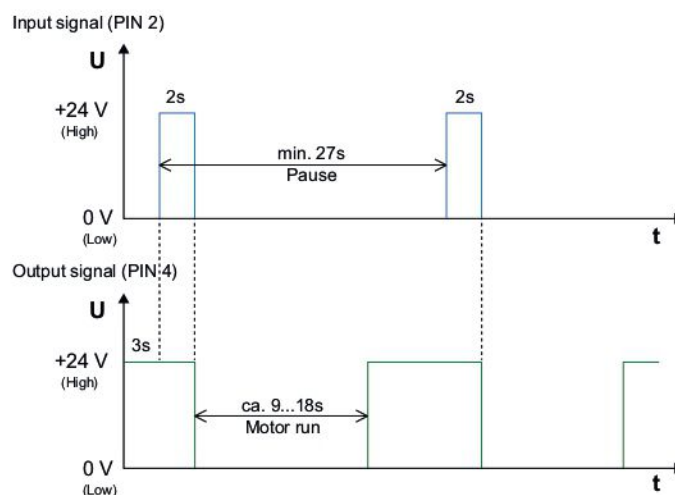
If outlets 2.1 and 2.2 are to be addressed then the signal (5 sec.) must be sent twice. Note the pause times!

Operating Instructions for CLA Lubrication System

Control of CLA lubricant oil pump 4A 2PK 500ml PC



Outlet 1.1

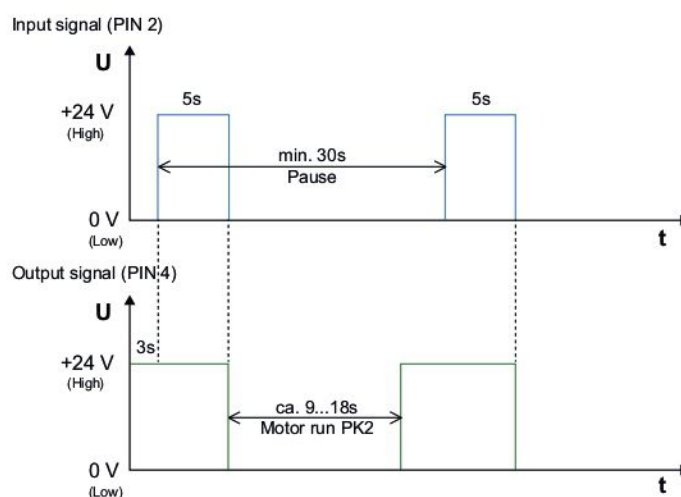


Outlet 1.1 and 1.2

If outlets 1.1 and 1.2 are to be addressed then the signal (2 sec.) must be sent twice. Note the pause times!



Outlet 2.1 or 2.2



Outlet 2.1 and 2.2

If outlets 2.1 and 2.2 are to be addressed then the signal (5 sec.) must be sent twice. Note the pause times!