

# Motorized Rotation Mount

065117000/065118000



## Technical documentation

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065 117 000b

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## 1 About This Technical Literature

A number of symbols are used in this technical hardware description to give you quick guidance and to draw your attention to the essentials.



### **IMPORTANT NOTE**

This symbol indicates important or additional information on this product.



### **CAUTION**

Indicates a hazard that can damage the product. Any resulting hazards for people must be avoided.



### **DANGER**

Risk of electric shock by high electrical voltage if touched.

The information in this document is subject to change without prior notice!

## 2 Important Information

### 2.1 Information on the use of the Rotation mount

This rotation mount has been designed for use with LINOS construction systems and may not be modified in any way. If any malfunction occurs, please be sure to contact our Service Department (for a list of addresses, please refer to Chapter Service). LINOS shall not be liable for any direct, indirect or consequential damage, particularly if such damage is caused by negligence, and no matter whether such damage arises in connection with the warranty, a contract, an offence or a further legal theory.

The electrical equipment described (apparatuses, systems, installation and networks) is only intended for use in industrial or scientific areas. Compliance with the legal requirements and directives concerned is essential.

If used incorrectly, this electrical equipment may generate hazardous voltage or may have "live" parts during operation. Removing the required covers or inadequate maintenance may severely endanger or impair the health of individuals or cause material damage. Therefore, the person responsible for the safety of the equipment must ensure that

- only qualified personnel are entrusted with working on or operating the equipment and machinery;
- these persons always have the appropriate instruction manual and any additional product literature as necessary for all operating steps and servicing and repair work, and that such persons are obligated to observe these instructions and information at all times;
- work on this equipment and machinery or in their vicinity is prohibited for non-qualified personnel.

Qualified personnel are persons who by virtue of their education, experience and training as well as their knowledge of the pertinent standards, requirements, occupational and work safety regulations and operating conditions have been authorized by the person responsible for the safety of the installation or system to perform the work as required and can recognize and prevent any potential hazards (see definitions for skilled labor according to VDE 105 or ICE 364).

This information is not exhaustive. If you have any questions or problems, please contact LINOS Photonics GmbH & Co. KG.

The information on processes explained in this instruction manual and circuit details apply analogously and must be reviewed before actually applying this information to your specific application.

LINOS Photonics GmbH & Co. KG shall not assume any guarantee for the suitability of the procedures and suggested circuits for specific applications.

The information in this instruction manual describes the features of the product without expressly assuring such characteristics.

We have carefully tested the equipment hardware and software as well as the product literature. However, we do not make any warranty that they are free of errors.

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Our products continuously undergo further development. We reserve the right to make changes without prior notice. At the Internet address <http://www.linos.com> you will find information and, where available, update possibilities.

## 2.2 Safety Instructions

**Attention! This disposition shows the essential security/warning tips and raises no claim to completeness.**

- Please follow all safety instructions including the directions for the connected equipment.
- Read this instruction manual carefully. It will enable you to best use the *rotation mount* and prevent problems and damage.
- Always keep this instruction manual handy.
- Make sure that if you connect an external power supply, the maximum voltage of 12 volts DC cannot be exceeded.
- Never expose the *rotation mount* to direct sunlight, high humidity, dirt or extreme temperatures.
- The *rotation mount* may only be used in dry rooms that do not have any risk posed by an explosive atmosphere.
- It is prohibited to use the *rotation mount* outdoors.
- Ensure that the *rotation mount* is sufficiently ventilated at all times.
- Check that the cable has the correct current-carrying capacity and that the appropriate connectors are correctly wired and attached; to avoid wire breakage or a cable break, install all cables so that they cannot cause any accidents.
- The *rotation mount* may only be operated in a range of 0-40°C and up to 80% relative humidity.
- Do not store the *rotation mount* below 0°C (32°F) or above 70°C (158°F) and only up to 80% relative humidity.
- Using the *rotation mount* in equipment on people, e.g. controlling a surgical robot, is strictly forbidden.
- The *rotation mount* is not a toy and may not be used as such.
- Changing the *rotation mount* is forbidden and leads to guarantee loss.



**These instructions are a component of the rotation mount and must be kept handy. If this rotation mount is given or sold to other persons, these instructions as a component of the equipment must also be given to these persons.**

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## 4 Overview

### 4.1 Equipment Supplied

Depending on your rotation mount model, the equipment supplied can include the following:

Rotation mount model 065118000 stepper motor:

- Rotation mount, fully assembled
- 7 threaded pins, M2.3 x 3
- Operating instructions



Rotation mount model 065117000 servomotor:

- Rotation mount, fully assembled
- 7 threaded pins, M2.3 x 3
- Operating instructions



Optional: Model 065117901 reflected-light barrier:

- Reflected-light barrier with connecting cable
- 2 Allen screws, M3 x 6
- Silver adhesive tapes (3.5 x 20 mm)



## **4.2 Brief Technical Reference**

The following is a summary of the functions and characteristics of the rotation mount:

- Rotation or positioning of polarizers (stepper motor model)
- Rotation of mirrors, beam splitters, or prisms on the optical axis
- Periodic attenuation
- Optical shutter
- Maximum rotational speed, servomotor model: 200 rpm (adjustable from 10-200 rpm)
- Maximum rotational speed, stepper motor model: 400 rpm\*; smallest step angle: 1.8°
- Transmission ratio, motor to optic mount: 0.7

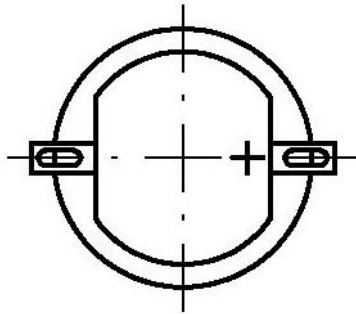
*\*dependent on the control unit*



## 5 Installation and Connection

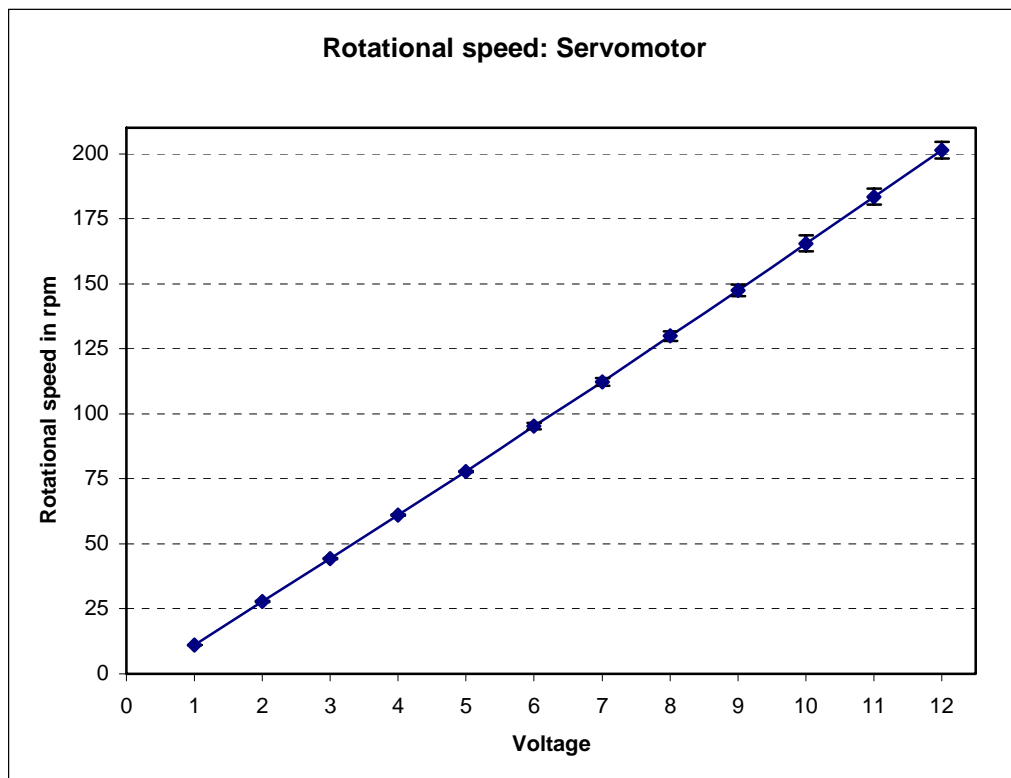
### 5.1 Rotation Mount with Servomotor (065117000)

#### 5.1.1 Motor Connection



Nominal voltage:	12V
Connection resistance:	24Ω
Output:	1.44 W
Efficiency:	75%
Gear ratio:	41:1
Maximum torque:	20 mNm (continuous operation) 100 mNm (short-time operation)


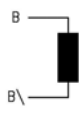
#### 5.1.2 Diagram: Voltage and Rotational Speed

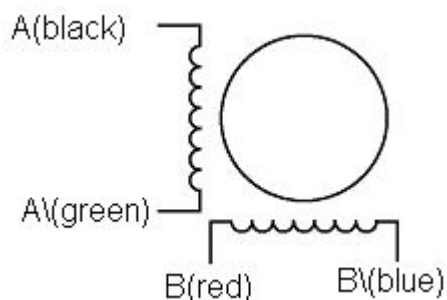


**Use only a certified power supply unit that complies with the applicable safety regulations and operate the motor only within the voltage range indicated.**

## 5.2 Rotation Mount with Stepper Motor (065118000)

### 5.2.1 Motor Connection

Type of connection	Motor		
	Bipolar	Connecting pin	Wire color
A -	1	black	
A\' -	2	green	
B -	3	red	
B\' -	4	blue	



Specification	Value
Voltage	4.3 V
Current (per phase)	0.8 A
Resistance (per phase)	5.4 ( $\pm 15\%$ ) $\Omega$
Inductance (per phase)	1.5( $\pm 20\%$ ) mH
Holding torque	0.03 Nm
Detent torque	$15 \times 10^{-4}$ Nm
Step angle	1.8°
Temperature increase (at maximum holding torque)	maximum 80 °C



**Use only certified stepper motor controllers. Always observe these specifications when operating the stepper motor.**



**Caution: Burn Hazard**  
The stepper motor can become extremely hot during operation.



**Make sure nothing blocks the free flow of air around the motor, and that the motor is sufficiently cooled at all times.**

## 6 Optional: Model 065117901 Reflected-light Barrier



The model 065117901 reflected-light barrier makes it easy to determine the rotational speed of the rotation mount.

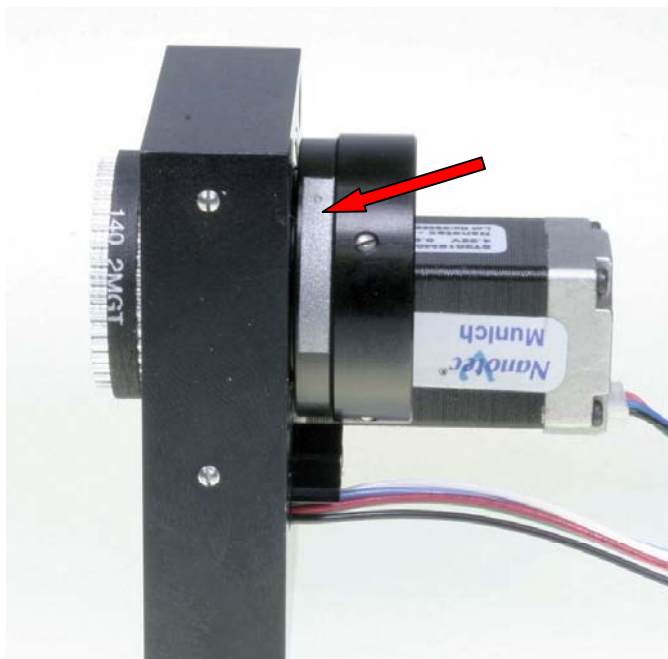
### ***6.1 Equipment Supplied***

- 1 reflected-light barrier: OPB 770TZ
- 2 Allen screws, M3 x 6, ISO 4762
- 1 reflective strip (3.5 x 20 mm)

## 6.2 Installation



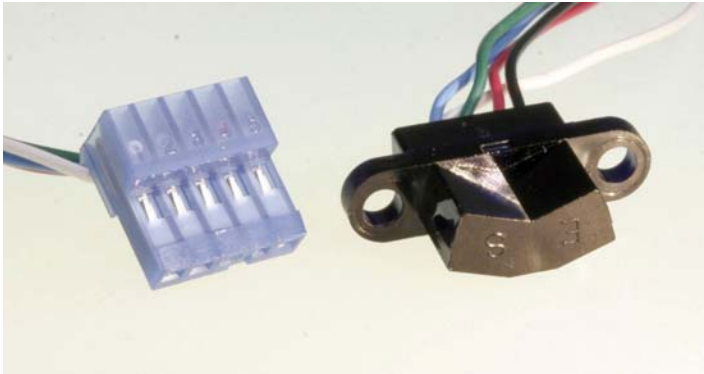
Use the Allen screws supplied (M3 x 6) to fasten the reflected-light barrier in the countersunk pouch on the base



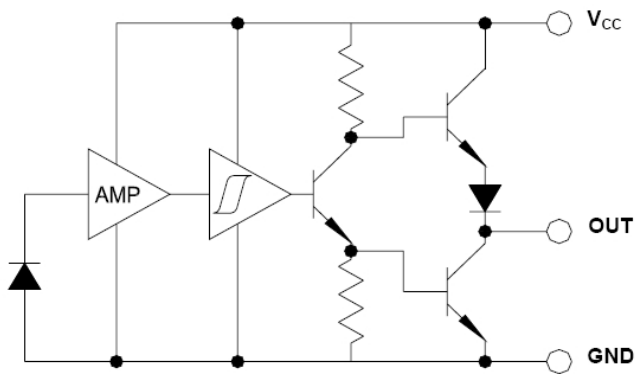
Affix the reflective strip supplied on the rotary support (see illustration, left)

The length and position of the strip are determined by the pulse width and phasing of the output signal.

## 6.3 Connection



Pin 1	V <sub>CC</sub>	White
Pin 2	Output	Blue
Pin 3	GND	Green
Pin 4	Anode	Red
Pin 5	Cathode	Black



The output of the reflected-light barrier supplies a TTL signal and thus can be used for direct evaluation or control.

### Connection values:

Quantity	Parameter	Value	Unit
<b>Diode</b>			
V <sub>F</sub>	Voltage	1.8	V
I <sub>R</sub>	Current	100	μA
<b>Sensor</b>			
V <sub>CC</sub>	Power supply	5	V
I <sub>F</sub>	Current	25	mA
V <sub>OL</sub>	Output low	0.4	V
V <sub>OH</sub>	Output high	2.4	V



**Always observe these specifications when operating the reflected-light barrier.**

## 7 Disposal



Warning! This LINOS product should NOT be thrown into ordinary waste disposal bins. If this LINOS product is not required any longer and you want to dispose of it, then please send it to the specified address given below for professional disposal. Thank you very much!

## 8 Service

For service or repair work, please contact:

**LINOS-Photonics GmbH & Co. KG**  
Service Department  
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