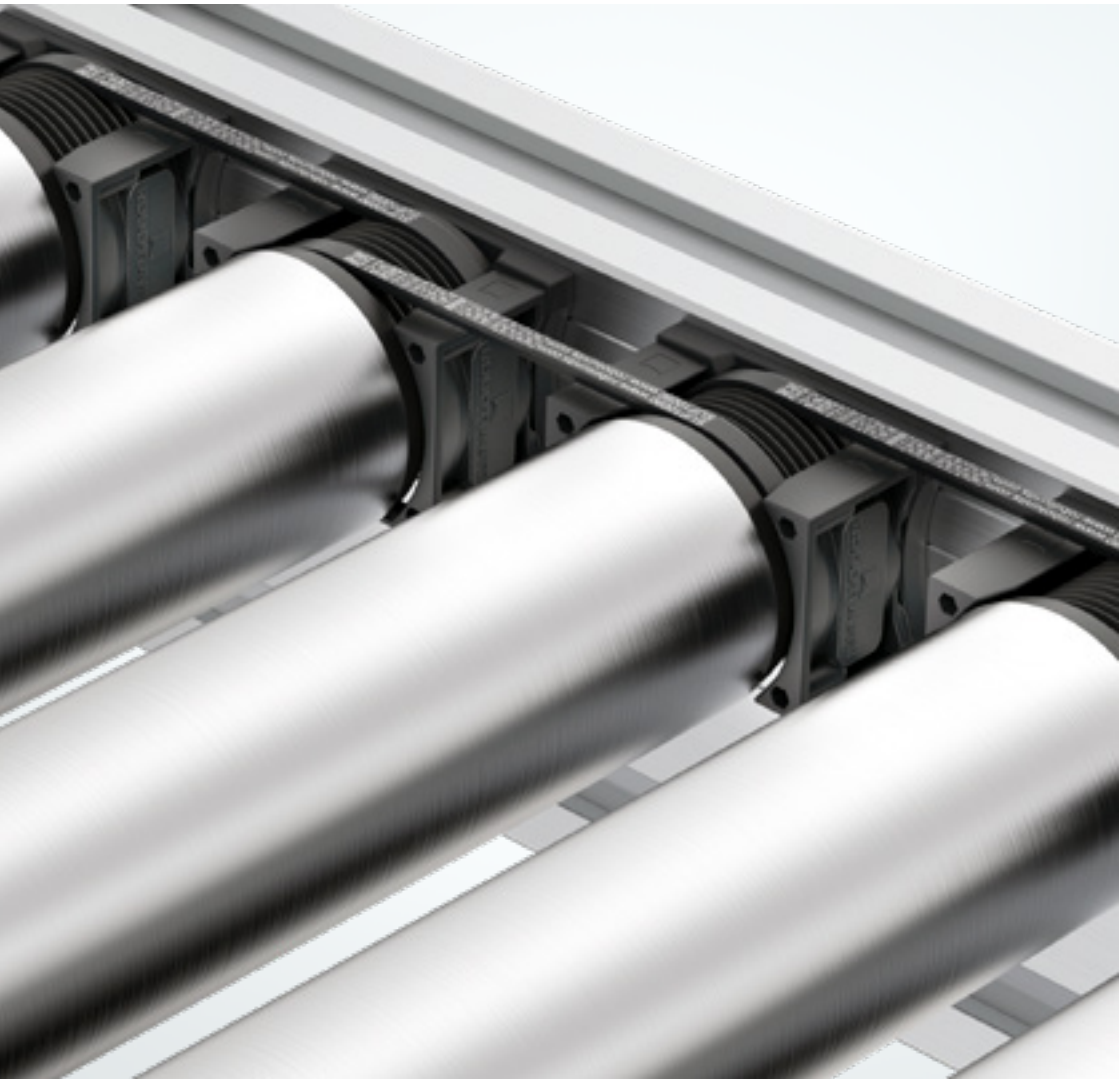
ROBOTUNITS®



Powered Roller Conveyor

Operating and assembly instructions

Contents

1. General information

1.1 Manufacturer of the system

Robotunits GmbH
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www.robotunits.com

1.2 Introduction / purpose of the operating and assembly instructions

Roller conveyors delivered with zero pressure accumulation control logic (ZPA logic) are considered a complete machine (Machinery Directive 2006/42/EC, Art. 2a), and this document is accordingly considered an operating instructions. Please see the enclosed documents for the required declaration of conformity.

Roller conveyors delivered without control logic are considered an incomplete machine (Machinery Directive 2006/42/EC, Art. 2g), and this document is accordingly considered a set of installation instructions.
Please see the enclosed documents for the required installation declaration.

Only the designation “machine” is used in the following document.

1.3 Version

Version	Art	Datum
5	Operating and assembly instructions	01.08.2021

2. Safety

2.1 General information

- This manual is considered part of the machine. It must be kept in close proximity to the machine at all times. Carefully observing this manual is required in order to ensure proper use and correct operation of the machine.

- Robotunits only considers itself responsible for the safety, reliability and function of the device if assembly, new installations, modifications, expansions and repairs are carried out by Robotunits or an entity authorized by Robotunits, and the machine is used in accordance with the manual.

2.2 Intended use

The roller conveyor is designed and constructed in order to
- transport general cargo or liquids in closed containers horizontally with zero pressure accumulation.
- be used in industrial and commercial applications.

The machine may only be operated by trained personnel.

Application limits:
- Ambient temperature: + 2 to + 40 °C
  (do not store outdoors, avoid heat shocks).
- Relative humidity: < 90 % (not condensing)
- Vibrations: < 0.5 G

2. Safety

2.3 Unintended use

The following is prohibited:

1. Any unintended use.
2. Using the machine under different conditions and stipulations than those set forth by the manufacturer in its technical documents, data sheets, assembly, installation and operating manuals, as well as in other specifications.

The following, in particular, must be prevented:

- Operating the machine without safety equipment.
- Manipulating, bypassing, or deactivating installed safety equipment.
- Using the machine in or under the water.
- Transporting animals or people.
- Transporting hot substances and objects (> 40°C).
- Transporting and using the machine in acids, aggressive agents, abrasive materials and substances.
- Transporting materials at excess speed.
- Damage caused by improper installation of the roller conveyor.
- Using the machine in a household environment.
- Intentionally generating or processing flammable or explosive materials, or using the machine in areas where the frequent or ongoing occurrence of explosive dust or gas atmospheres is expected.
- Using the machine in areas where the frequent or ongoing occurrence of corrosive atmospheres is expected.
- Using the machine in areas where objects can be damaged by static discharge.

Design modifications can be made to use roller conveyors in certain explosive areas and anti-static areas. Please contact Robotunits in advance.

If the operator moves or transports other or additional materials and substances besides those known to the manufacturer and/or indicated in the technical specifications, then the manufacturer's declaration no longer applies. In this case, directive 2009/104/EC applies.

2. Safety

2.4 Safety information for normal operation

Robotunits has developed and designed the machine according to state of the art technology.

- National laws and regulations on safety and health protection for employees must be observed when operating the machine! In the interest of a safe work process, operators and users are responsible for complying with regulations.
- The user must check the machine to ensure it is working properly and in good condition each time before use.
- The user must have read and understood the machine manual.

2.5 Electrical safety information

- Installation must be carried out by a qualified and authorized technician.
- Only connect the machine to a power supply of sufficient size.
- Immediately shut down the machine using the switch or emergency stop in hazardous situations or in case of a technical fault
- Pulling on the cable to disconnect the plug is prohibited.
- Prevent cables from becoming kinked.
- When removing or subsequently installing cables, use cable bushings to avoid damage.

2. Safety

2.6 Mechanical safety information

- Standing or walking on the rollers or profile frame is prohibited.
- Reaching between two rollers while they are in operation is prohibited.
- Reaching between the drive belt and drive belt head while they are in operation is prohibited.
- Removing safety equipment is prohibited, i.e. the machine may only be operated in its original condition.

“Safety integration” must be ensured during installation or when adding / integrating the machine (in)to a superordinate system. This can result in the integrator having to add separate or further protective and safety equipment. This must be determined based on a hazard analysis at the work site, to be conducted by the integrator.

2.7 Safety information for cleaning and maintenance work

Before completing cleaning work, disconnect the machine from the power supply and secure it against restarting.

Only use suitable cleaning agents

3. Transportation

3.1 Machine storage/transportation conditions

The machine must be secured against tipping over during transportation and storage.
Do not store outdoors.

3.2 Transportation equipment requirements

Note the position of the center of gravity when lifting the machine.
Standing under the load is prohibited.

Suitable transportation equipment must be used.

4. Technical data

4.1 Connection data with included power supply

Connection voltage:	400 VAC
Mains frequency:	50 Hz
Connection:	CEE plug (16 A)

A maximum of 12 motorized rollers can be connected to one power supply.

4.2 Connection data without included power supply

Control voltage:	24 VDC
Max. continuous current per motorized roller:	2.5 A

5. Commissioning/decommissioning

5.1 Personnel requirements

All work on the machine may be carried out only by qualified and authorized technicians.

5.2 Connecting the machine

Requirements:

- The machine must be anchored to the floor so it cannot tip over
- Observe required electromagnetic compatibility measures
- Ensure equipotential bonding

Connect the machine according to the enclosed connection diagram.
Grounding: The entire conveyor belt frame must be wired to the ground. Furthermore, the 0 V connections of the power supply must be grounded.
If the machine is installed close to a workstation„ a mains cut-off device for shutoff in case of an emergency must be installed in the intake line.

5.3 Commissioning

Before initial commissioning, check the following:

1. Ensure the proper installation of all safety equipment and covers.
   If the transported goods pose an increased hazard, ensure appropriate safety equipment and/or prevent access to the hazardous area.

2. Ensure proper attachment of the motorized rollers.

3. After starting up the roller conveyor for the first time, check the speed and running direction.

4. Check the grounding screw for proper attachment and the ground cable for secure fixation in the terminal.

5. Commissioning/decommissioning

5.3.1 Commissioning with included power supply

1. Connect the CEE plug.

2. Turn on the main switch.

5.3.2 Commissioning with customer-supplied power supply

Connect the roller conveyor to a sufficiently dimensioned power supply according to the connection diagram, and turn on the main switch.

5.3.3 Commissioning the controller

For the variant with the pre-installed controller, the roller conveyor will be ready for operation.

If modifications must be made to the roller conveyor controller (such as to the speed, braking distance, ...), please contact Robotunits.

For the variant without a controller, the customer must upload the relevant controls.

Information on control technology is available on our homepage:
https://robotunits.com/en/shop/conveyor-technology/powered-roller-conveyor-system/powered-roller-conveyor-straight/

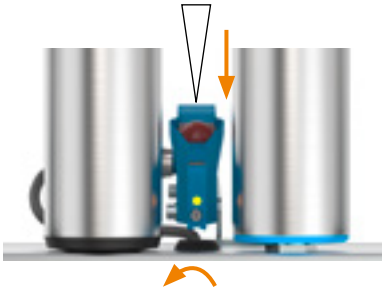
5. Commissioning/decommissioning

5.3.4 Safety instructions for commissioning:

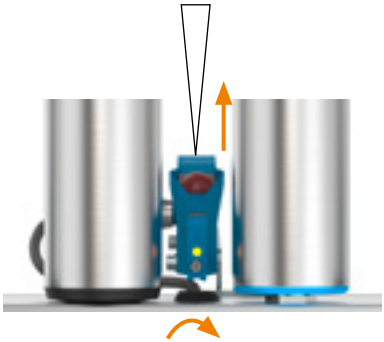
Removing safety equipment, covers, and protective devices during commissioning is prohibited.
The hazardous area must be secured.
Approaching and/or operating the machine is only permitted with appropriate protective clothing (hair net, hearing protection, safety shoes, etc.).

5.3.5 Setting sensor switching points

The standard setting is pre-set as a default.
Procedure for adjustments:



Turn the set screw **counterclockwise** to reduce the sensor range



Turn the set screw **clockwise** to increase the sensor range

5. Commissioning/decommissioning

5.4 Decommissioning

Before decommissioning, shut down the machine and disconnect it from the mains power before completing further disassembly work. The machine must be in a safe state during decommissioning.
Decommissioning must be carried out by a qualified and authorized technician.

5.4.1 Decommissioning with included power supply

Turn off the main switch!

5.4.2 Decommissioning with customer-supplied power supply

Depending on the power supply used, disconnect the roller conveyor from mains power and/or turn off the main switch!

5.5 Disposal

The machine must be disposed of in accordance with national regulations.

6. Maintenance

Operator safety and fault-free operation of the machine are ensured only if original machine parts are used.
Correct machine maintenance is essential to ensure fault-free operation and a long service life.

All maintenance work must be conducted when the machine is powered down.

6.1 Personnel requirements

Maintenance must be carried out by a qualified and authorized technician.
Ensure the stability of the machine during maintenance work.

6.2 Maintenance table

Maintenance location	Maintenance interval	Task
Electrical installations	2 x annually	Visual inspection for damage and firm attachment
Poly-V drive belts	1 x quarterly	Visual inspection for damage (such as cracks or porosity)
Poly-V safety guard	1 x quarterly	Check for firm attachment
Screw connection after initial commissioning	1 month after initial commissioning	Check for tight fit
Screw connections	1 x annually	Check for tight fit
Sensor	as needed	Clean off any dirt

6. Maintenance

6.3 Replacing the roller conveyor controller

When the machine is turned off, replace the roller conveyor controller with a new one, and connect all sensors, motors, network cables and power connections to the new module.
Then turn on the roller conveyor and press the Replacement button and hold it for a few seconds until the status LED flashes red.
Then release the button.

Cable connection

Replacement button

ATTENTION: The module exchange process may take several seconds to complete!

6.4 Reset the roller conveyor to the default state

When the machine is switched off, remove all sensors, motors, and network cables from the module on the roller conveyor controller. The power connections are required.
Then turn on the roller conveyor and press the Replacement button and hold it for a few seconds until the status LED flashes red.
Then release the button.

Power supply is connected

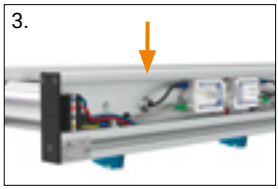
Replacement button

6. Maintenance

6.5 Poly-V belt exchange for straight roller conveyor

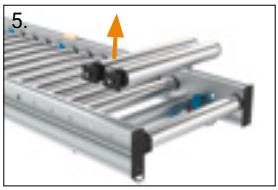
Remove protective elements

Remove the cover profiles on both sides



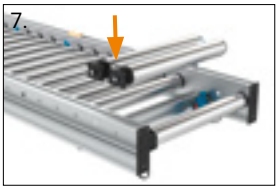
Loosen the hexagonal nut and remove the torque support if necessary (only for motorized rollers)

Press the spring-loaded shaft to the stop in the direction of the rollers



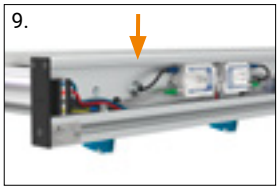
Lift the rollers out of the mount

Change the Poly-V belt



Insert the rollers into the mount

The spring-loaded shaft snaps into the mount



Attach the hexagonal nut (and torque support if needed) to the cable outlet

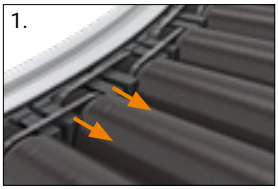
Tightening torque:
With lateral guide:
50 Nm
Without lateral guide:
Hand-tighten

Mount the cover profile

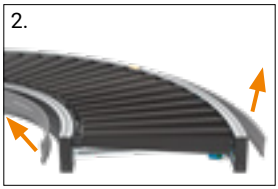
Snap in protective elements

6. Maintenance

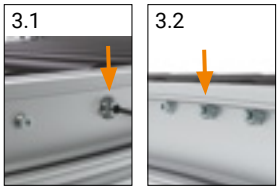
6.6 Poly-V belt exchange for curved roller conveyor



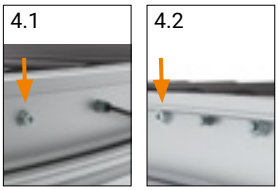
Remove protective elements



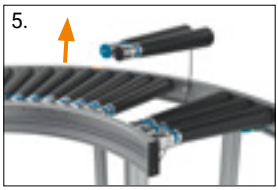
Remove the cover profiles on both sides



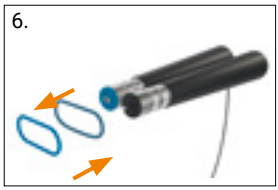
Loosen the hexagonal nuts



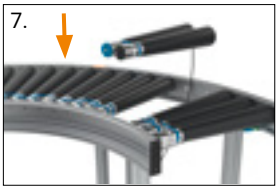
Loosen the screws



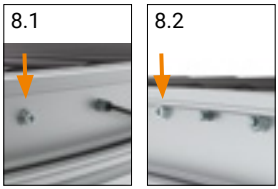
Lift the rollers out of the mount



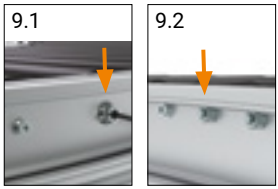
Change the Poly-V belt



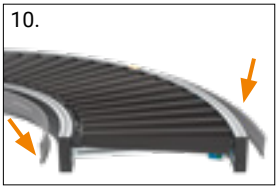
Insert the rollers into the mount



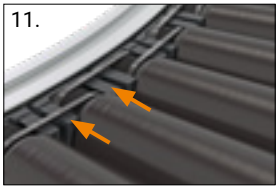
Tighten the screws



Tighten the hexagonal nuts (Motorized roller = 50 Nm)



Mount the cover profile



Snap in protective elements

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