Modular conveyor

User manual

Technical Documentation

Safety

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Introduction

The manual is basic machine. With this manual should be sure to read the user supports modular conveyor and the person making the repairs and maintenance. General information about the machine can be found on the nameplate on the back.Before starting the machine, carefully read the instruction manual, design and function of the conveyor. Adherence to the guidelines contained in this manual will ensure trouble-free operation and efficient use of the machine. In case of any difficulties and problems with the operation of the conveyor, please contact the dealer or directly to the machine manufacturer, which is:

StudioCDR Andrzej Żak
ul. Ozimska 4/6, 45-057 Opole
tel. 602 497 093, www.studiocdr.pl

IMPORTANT!
Please keep the original packaging has to be sent complaint to the manufacturer.You modular conveyor is obliged to take care over the lifetime of clarity of labels on the machine.
In case of damage or destruction must be replaced with new ones.

Reselling machine instructions must be handed buyer.

Safety

Read carefully this manual will ensure proper maintenance and operation of the machine.

1 Before putting a modular conveyor must be checked in terms of traffic safety and operation.

2 The conveyor can handle an adult, who took note of this manual.

3 During operation, the conveyor is prohibited approaching members of the public,and, in particular children.

4 Never use a machine that is showing signs of mechanical damage.

5 When attaching or detaching the modular conveyor in the workplace with the laser caution.

6 Before starting to work, both the laser and the conveyor, set on a flat and level surface and prevent it from tipping over.

7 Before each use, check if the carrier does not enter the foreign objects.

8 Each time before starting the conveyor make sure that near the machine are not bystanders.

9 Before each use, check the connection to 220V AC and 12V socket in the housing of the conveyor. You should also check the connection of a connection with the laser.

10. When you turn the conveyor must be careful in order not to block the booting modular belt as an automatic shift of two fields.

11. Cables and modular belt that show signs of damage, it is advisable to replace, repair, or before it comes to their destruction.

12. Cracked module can Mies sharp edges and can cause serious injury. The wounds go immediately (risk of infection).

13. Repair work on the electronic and mechanical can only be performed by trained personnel.

14. It is forbidden to leave the machine unattended during operation.

15. The retention strap during its operation.

16. It is permissible to transport conveyor modular belt unprotected only in the working position and short distances. The long-distance transport to stiffen modular tape over its entire length (eg foil bubble).

17. When you are finished, turn off the power strip switch.

18. Repair, maintenance and cleaning and removing defectscarried out with the drive is switched off and stopped the tape module.

19. Nuts and bolts regularly for their fixed location and tighten.

20. When replacing parts use the right tools.

21. Before working, disconnect the electrical supply.

22. Spare parts must comply specified by the manufacturertechnical requirements.

23. Do not operate the equipment in wet areas.

Safety

NOTE!

1. Due to the aggressiveness of the environment (emitted fumes and pollen during the engraving), use the extract and the ventilation of the room in which you are engraving. Accumulate pollen can fall through the cracks tape into the machine and cause damage. The company reserves the right to withdraw from the liability for any damage caused by improper use.
2. Failure to follow the above-mentioned observations risk of personal injury and disability.
3. It is forbidden to operate the conveyor to unauthorized persons and outsiders, in a disease state, while intoxicated or under the influence of drugs, and in particular children.

REMEMBER!

Modular conveyor should be used according to specifications. Failure to follow the instructions of the manufacturer may void your warranty.

Purpose and condition of use

Modular Conveyor is designed to carry pens and automatic stop the tape and attach a laser engraver that does (marking) on the pen.Pens are applied manually on the elements of a modular belt by a trained individual.Marked laser pens, drop automatically when the drive to the end of the tape. In order to adjust their collection job by substitution at the end of the tape cartridge.Mounting a conveyor at the work of the laser described in the section "Preparation and assembly description" of this manual.The conveyor is designed primarily for use with lasers in an open system.The conveyor is designed for marking pens with a stroke of module 1 Jump at two or more modules is optional and does not guarantee to maintain accuracy.And ensuring optimal performance of the conveyor location for a field module is engraved on the left side of the tray, which extends into a slot optical sensor.

The conveyor is characterized by:

- Continuity of work,
- High repeatability of marking (on the module in the slot entering the optical sensor and the stroke unit equal to 1),
- Eliminating wasted time caused during packing and unpacking pens,
- Job security by restricting access of hands and eyes to the laser beam,
- Small dimensions and low weight,
- Needs a little work surface
- The possibility of creating a total mechanization of transport pens,
- Low cost of operation compared to other transport equipment,
- The possibility of counting labeled pens.

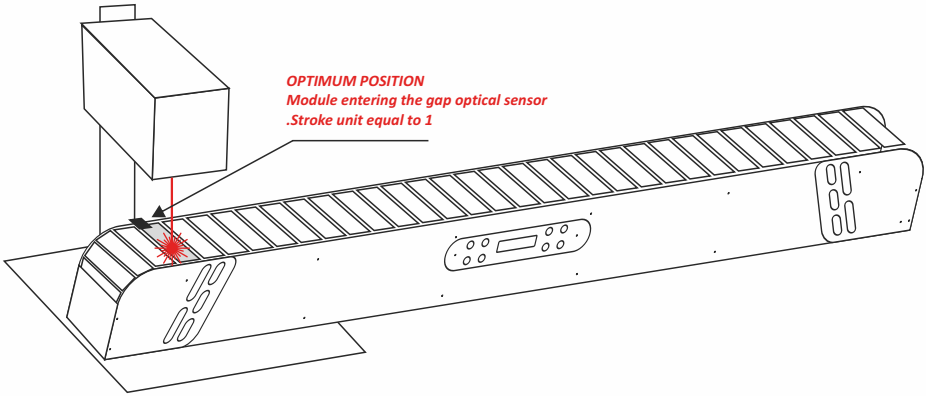
Preparation and describes how install

Before installation, check the condition of the conveyor. It is mainly pay attention to the elements of the modular belt mechanical damage. It is recommended to check all the items displayed on the front and back of the device.Installation of a conveyor at work is very simple. Place the left end portion of the laser beam. Focal length will be determined individually for each type (thick) pens.Exact positioning of the conveyor automatically after the device and its calibration (set to modular belt in the correct position).

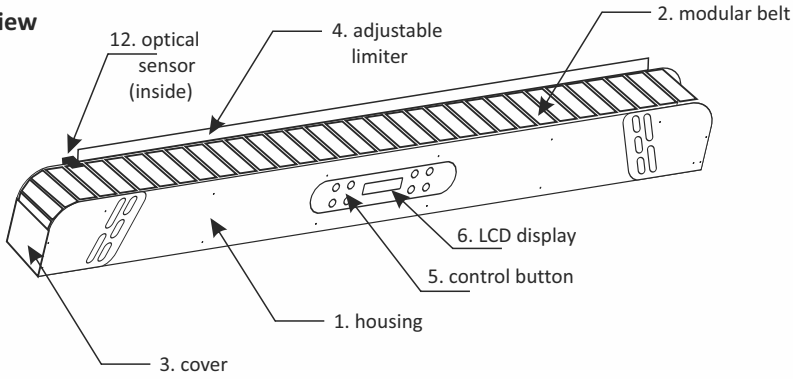
NOTE!

Laser and conveyor, set on a flat and level surface and prevent it from tipping over.

Conveyor no additional items as fixtures specially designed for carrying, lifting, or other activities necessary for installation of hand because the excessive accumulation of body parts on a conveyor reduces its functionality especially when adjusting and setting the operating position. The shape machine for easy access and secure grip during the assembly. Be careful around the protruding type: stepper motor stop and the lower corners of the enclosure. The existence of the possibility of exposure to hand cut the edges of these elements (as indicated by the use of protective gloves).

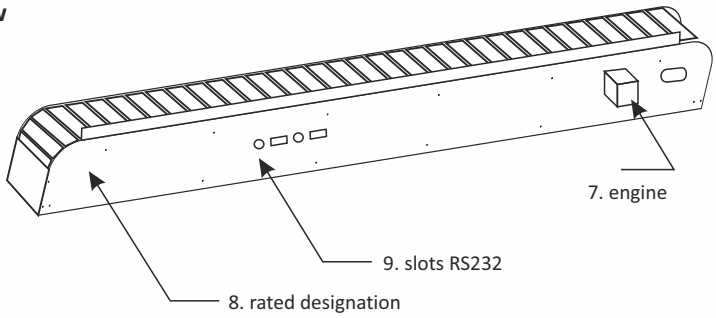


Front view



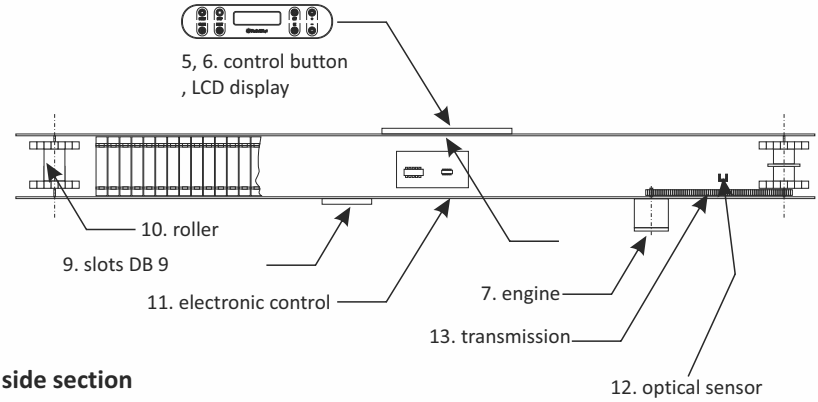
1. Housing - durable construction made of rigid material in a brushed silver color.
2. Modular belt - the main part responsible for carrying pens.
3. Cover - cover the left and right side of the cover, which hides the interior and prevents getting to the middle of the conveyor undesirable elements.
4. Adjustable limiter - secondary element is used to accurately align pens during their installation on the tape.
5. The control buttons - used to control the process of the tape. Key features include: start, stop, pause.
6. LCD display - the graphic representation of the work of the conveyor.

Back view

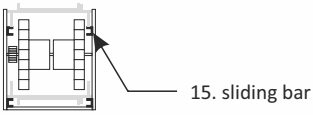


7. Engine - main drive. Modular belt driven by a belt drive.
8. Rated designation - contains data from the manufacturer and serial number of the machine.
9. Slots - these include: power, DB 9 control signal laser.

sectional top

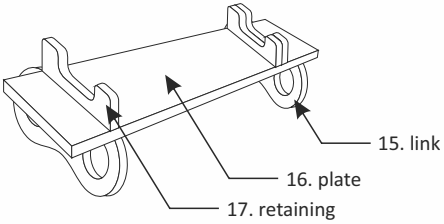


side section

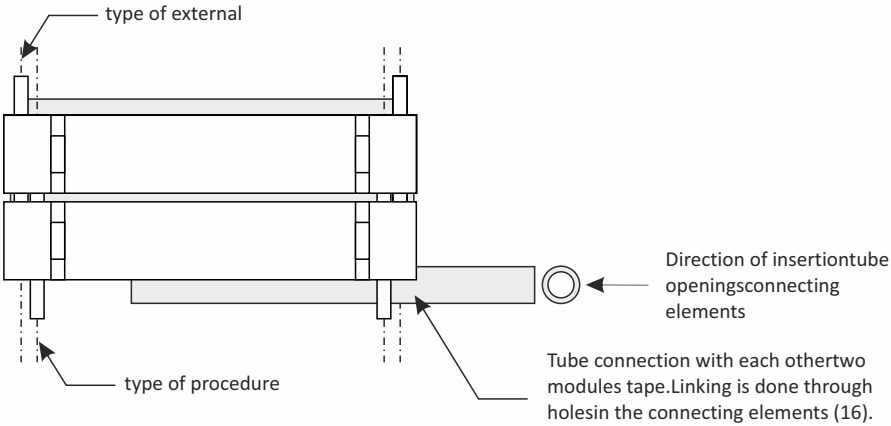


10. Shaft-wheel assembly - the two rollers with gear wheels arranged at the ends of the housing. They are used to move the tape proper. Left roller is driven via a transmission gear, and the left rotates freely. Both shafts are mounted in the housing openings, rotating on ball bearings.
11. Electronic control unit - this is a printed circuit board with processor responsible for the control of a stepper motor, and the rest of the electronics associated with normal controls. The motherboard supports: control buttons, an optical sensor, stepper motor, LCD display, I / O sockets.
12. An optical sensor - is used to detect each tube connecting the modules.
13. Belt transmission - torque is transmitted from the engine to the drive shaft. The motor and shaft mounted gear wheels are aluminum belt drive connected.
14. Slide rail - the entire length of the inner side of the housing are provided guide bars to the correct movement of the modular belt.These are aluminum which is glued over the whole length, Teflon tape for easy gliding.

Module



How to combine belt modules.
Connecting an external type of internal eliminates the possibility of moving theitems relative to each other. The whole modular belt is rigid along its entire length



15. **Connector Modules** - Module element that has two holes for carrying aluminum tube that connects the new modules.
16. **Modular Tile** - the most important part of the module which displays all the elements: connector retainer.
17. **The retaining** - used to hold (stiffening) pen located on the module. It is additionally equipped with a rubber band to prevent the pen from slipping during movement of the belt. Standard design allows properly embed the most ballpoint pens. In the case of custom orders, you can adjust the shape of your individual needs.

Maintenance

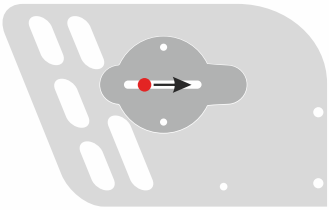
1 How to unfasten modular belt
- Increase in the middle of the conveyor belt in order to discover the connecting modules (Fig. 1).
- Find an item combined with screwed cap.
- Remove the cap that covered the holes. (Fig. 1)
- Pull out the tube carefully with one hole of the connecting modules (Fig. 2).
2 A method modular belt buckles
- Bind together the two ends of the strip.
- Carefully push the tube into the hole of the connecting modules (Fig. 2).
- Secure the hole screwing cap (Fig. 1).


Fig. 1


Fig. 2


Fig. 3

3 Replacing the tape sliding on the guides- Follow the point. 1
- Pull out the seal completely modular bearing in mind that it pull the tape rolling by Figure 3
- Create a new tape and slowly keep its end according to its proper position. Be sure that the tape is wrapped correctly on gears.
- Merge the tape in accordance with point.
2Replacing a faulty module or group of modules
- Follow the point. 1
- Remove the cap from the defective module (if not bolted to break them).
- Put in place a new faulty module (shown in figure 2)
Changing the belt tensionLocation right adjustable roller is a specialclamp (right and left) located inside thehousing.
Gently loosen the clamps,move it the same distance and tightento the housing.
Tape during closing should notbe loosely or too tightly stretched.



Principle

Belt conveyor is powered by a power supply of 12V and 5A. A high current is applied due to a stepping motor which gets 1A phase. Motherboard shift process control supply voltage is 5V, which is obtained by a voltage stabilizer.

The electronic system is responsible for the proper control of a stepping motor, the activities related to the whole process and the correct tape for the proper display of the data on the LCD.

The proper stopping of the tape corresponds to an optical sensor investigating the edge of the tube connecting the modules.

The whole process is controlled by buttons. They are responsible for setting up the labeling process and its retention. You can temporarily stop (pause), and re-re-trial. The buttons are also used for programming options.

LCD display informs the user about the status of the conveyor. It shows us that the conveyor is stopped (Stop) or only temporarily interrupted (Pause). Counters indicate the number of cycles and the marking tape.

The entire marking process would not be possible if it were not connected to the laser through a conveyor connecting cable socket DB 9 with laser. In this slot, there are three wires in charge: investigate laser standby (only carrier to "Auto", the transfer to the laser signal to start labeling and mass.

Tape speed is controlled by a potentiometer. Do not use extremely slow and fast offsets due to the possibility of an error in a normal shutdown of the tape.

Modular belt rotates the gear wheels, which are mounted on shafts. Rollers rotate on ball bearings placed in the enclosure. The entire length of the conveyor rails are provided on which the tape moves.

Technical specification

Dimensions	
Length	1328 mm
Height (without stop)	125 mm
Width (without stop and start)	97 mm
Ground	6, 5 kg
Drive	
The stepper motor	0.9 Nm 1 pc
Gears	2 pcs belt drive
Timing belt	1 pc
Rotating shafts tape	2 pc
Power	
AC	12V 5A 1 pc
Power jack	1 pc
ON / OFF switch	1 pc
Electronics	
Motherboard	1 pc
Control processors	2 pc
The controlsbutton	8 pc
LCD display	1 pc
An optical sensor	1 pc
Tape speed potentiometer	1 pc
Socket DB 9	1 pc
Interconnect conveyor laser	1 pc (over 1.5 m in length)
Additional parameters	
Number of modules on tape	124 pcs + / - 2 pcs
Tolerance stopping accuracy	difference in stopping the modules laser beam can reach 1 mm
Service	1 person

Staring

After properly installing the conveyor to position the laser you are ready to start the conveyor:

1. Power Connection
The included AC adapter is connected to the 220V outlet and the conveyor is located at the rear of the housing.

2. The combination of laser with conveyor
First connect the supplied cable to the laser beam (laser RMI socket are D-SUB 26 pin) and the other end to the DB 9 in the back of the belt. NOTE! perform this task with off the conveyor and a laser device.3 Setting the FocusTo make the process of engraving was correct, set the focus for the module arranged on tape pen. The focus is described in the instruction manual laser.

4. The inclusion of the conveyor
To start the conveyor, switch the ON / OFF switch to the ON position.During startup will automatically calibrate the tape. The tape in the correct position for the optical sensor.
Caution! Calibration tape can make the reset button when the tape is in operation stop.

5. Fine adjustment of the conveyor.
At this stage, the exact set where in the pen is to be made engraver. To do this, move the conveyor belt instead. Move the tape will be out of calibration with respect to the optical sensor. Recalibrating the tape is possible by the Reset button.
Caution! At this stage you should have to be uploaded to the memory of the design ready laser marking pen and displayed on the working area.

6 Setting options
Spinning attempting to label should view or set the options available under the Support Set:Follow - an option used to determine the number of hops modules followed by a self-retaining. 0000 parameter sets an infinite number of hops.

To increase or decrease the parameter are + / - buttons, and quick to reset the reset button. Approved settings by pressing OK.

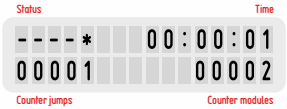
eg SET -> click (+) I set the 50 -> OK

Tape will make 50 movements. Ile module moves in a cycle is dependent on the options described below. For example, to mark the 100 pens at a stroke two modules, set Perform at the 50th

Jumping modules - this requires to jump tape held every single module. Optionally, this allows more than one engraving pen in a single tape. Jump over one module does not guarantee the accuracy of positioning engraving. How to set and approve how the Execute option.

Dwell time (only with conveyor "Manual") - this option sets the stop band. It is, in practice, the time at which the marking.

Mileage - this shows the total number of jumps modules.



7. Start marking a pause to stop and

Of course, before you press the

Start button on the tape should be placed at least one pen.Home - press the Start button will start the process of marking the first pen is installed under the laser beam. After the marking carrier has been informed about the possibility of moving tapes and follows the jump module and another marking. The cycle is repeated indefinitely, or according to established parameters (see ch. 6).

Pause - at any time we can pause the tape travel, for example, to make pens on the tape. For this purpose the Pause button. Pause does not reset the counters and the Windows Start button release continues the process of labeling.Pause does not allow you to change additional options. Note that pressing Home will first move the module, and then start printing process. This is due to the fact that temporarily stop the tape, not the labeling process.

Stop - at any time we can stop the whole process of labeling. Stopping completely allows you to change additional options. Pressing Start will start a new process of labeling with zeroed counters.

Reset - resets all the counters at any time marking.

Another function of this key is positioning the sensor strip but only able to stop working.

8. Exclusion

After use, the conveyor must first switch the power switch to the OFF position. Only then you can disconnect the power supply from 220V mains. Disconnect the cable from the wall DB 9 should also be made, with the conveyor and the laser device is switched off.

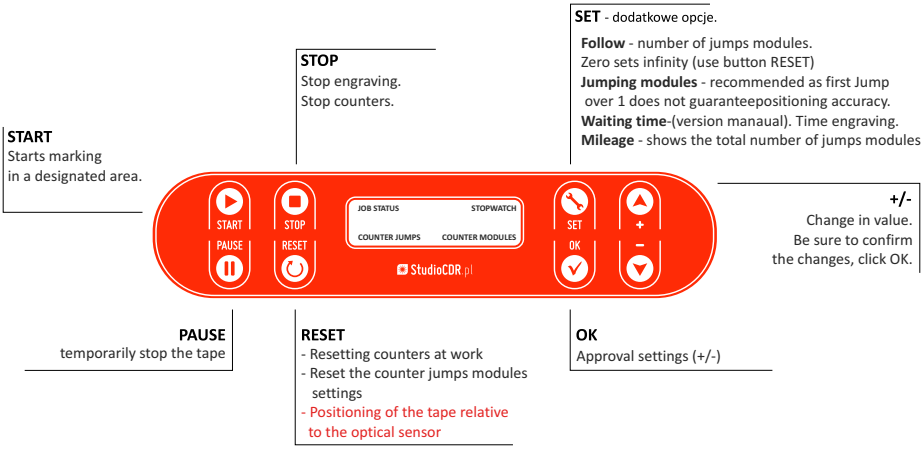
Instruction

Position engraving

The recommended position is the position of the engraving module slot which is one of the optical sensor.

Stroke unit

Recommended stroke unit is 1. Setting a higher value does not guarantee the accuracy stoppingposition engraving. This is due to the retention means on the sensor optical tape.



TAPE SPEED

Is used to change the speed potentiometer on the back.

TAPE POSITIONING THE OPTICAL SENSOR

Positioning the optical sensor tape is when you turn the tray or pressing the RESET button.

MODULAR BELT TENSION

It should not be loose. Belt tensioning elements are located within the housing.

Attention

- Raising the tape in place of the sensor can cause damage to or loss of accuracy.

- Use the fastest tape speed reduces the stopping accuracy in the correct position.
  NOT RECOMMENDED TO MAXIMUM SPEED!

- OPTIMUM POSITION MARKING