Assembly Instructions

Swing Applicator

SQ 3200

MADE IN GERMANY

Assembly Instructions for the following products

Family
SQ 3200

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Editor

Regarding questions or comments please contact cab Produkttechnik GmbH and Co. KG.

Topicality

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Table of Contents

1 Introduction 4
1.1 Instructions 4
1.2 Intended Use 4
1.3 Safety Instructions 4
1.4 Safety Markings 5
1.5 Environment 5

2 Product Description 6
2.1 Important Features 6
2.2 Technical Data 6
2.3 Device Overview 7
2.4 Contents of Delivery 8

3 Installation 9
3.1 Transportation Protection 9
3.2 Mounting the Applicator to the Printer 10
3.3 Connecting the Compressed Air 10

4 Operation 11
4.1 Test Mode without a Print Job 11
4.2 Test Mode with a Print Job 11
4.3 Standard Operation 12
4.4 Cleaning 12

5 Configuration 13
5.1 Setting in the printer menu 13
5.2 Special JScript Commands 14

6 Error Messages 15
6.1 Error Messages of the Printer 15
6.2 Error Messages of the Applicator 15

7 Licences 17
7.1 EU Declaration of Conformity 17
7.2 EU Declaration of Incorporation 18

1 Introduction

1.1 Instructions

Important information and instructions in this documentation are designated as follows:

Danger!
Draws attention to an exceptionally great, imminent danger to your health or life due to hazardous voltages.

Danger!
Draws attention to a danger with high risk which, if not avoided, may result in death or serious injury.

Warning!
Draws attention to a danger with medium risk which, if not avoided, may result in death or serious injury.

Caution!
Draws attention to a danger with low risk which, if not avoided, may result in minor or moderate injury.

Attention!
Draws attention to potential risks of property damage or loss of quality.

Note!
Advice to make work routine easier or on important steps to be carried out.

Environment!
Gives you tips on protecting the environment.

▶ Handling instruction

▷ Reference to section, position, illustration number or document.

∗ Option (accessories, peripheral equipment, special fittings).

Time Information in the display.

1.2 Intended Use

- The device is manufactured in accordance with the current technological status and the recognized safety rules. However, danger to life and limb of the user or third parties and/or damage to the device and other tangible assets can arise during use.
- The device may only be used for its intended purpose and if it is in perfect working order, and it must be used with regard to safety and dangers as stated in the operating manual.
- The device is designed to use on a cab printer of the SQUIX series. Any other use or use going beyond this shall be regarded as improper use. The manufacturer/supplier shall not be liable for damage resulting from unauthorized use; the user shall bear the risk alone.
- Usage for the intended purpose also includes complying with the assembly instructions, including the manufacturer‘s maintenance recommendations and specifications.

Note!
The complete and current version of the documentation can be found in the Internet.

1.3 Safety Instructions

Attention!
Initiation, adjustments and changing of parts are to be performed by qualified service personnel only.

Warning!
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

- Before mounting the delivered components disconnect the printer from the power supply and close the shutoff valve of the applicator.
- Only connect the device to other devices which have a protective low voltage.
- Switch off all affected devices (computer, printer, accessories) before connecting or disconnecting.
- In operation, moving parts are easily accessible.

This applies especially for the zone, where the pad is moved between the starting and the labelling position. During operation do not reach into that zone and keep long hair, loose clothes, and jewelry distant. Before any manipulations in those areas, close the shutoff valve.

- The device may only be used in a dry environment, do not expose it to moisture (sprays of water, mists, etc.).
- Do not use the device in an explosive atmosphere.
- Do not use the device close to high-voltage power lines.
- Perform only those actions described in this manual.
  Work going beyond this may only be performed by trained personnel or service technicians.
- Unauthorized interference with electronic modules or their software can cause malfunctions.
- Other unauthorized work on or modifications to the device can also endanger operational safety.
- Always have service work done in a qualified workshop, where the personnel have the technical knowledge and tools required to do the necessary work.
- There are various warning stickers on the device. They draw your attention to dangers. Warning stickers must therefore not be removed, as then you and other people cannot be aware of dangers and may be injured.

1.4 Safety Markings

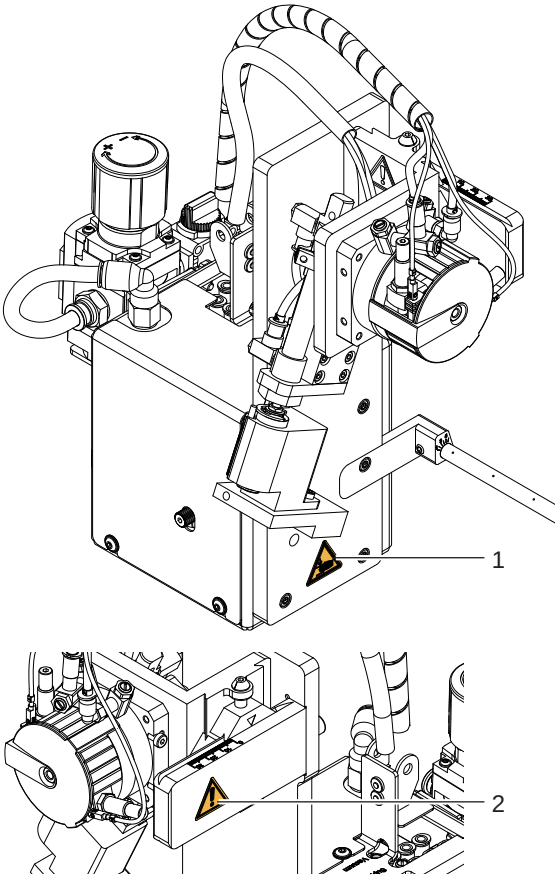


Fig. 1 Safety Markings

1: 

Danger of injury to hands and fingers by the moving pad!

2: 

The cylinder is under pressure even if the printer is switched off.

Possibility of residual energy!

Attention!

Never remove, cover or otherwise make illegible the safety markings on the printer and/or applicator.

Replace if damaged.

1.5 Environment

Obsolete devices contain valuable recyclable materials that should be sent for recycling.

▶ Send to suitable collection points, separately from residual waste.

The modular construction of the applicator enables it to be easily disassembled into its component parts.

▶ Send the parts for recycling.

2.1 Important Features

- The supporting air and the vacuum as well as the speed of the cylinder are adjustable. That way the applicator can be adapted to different label materials and sizes.
- To avoid contamination within the vacuum channels they are cleaned by air pressure pulses at the end of each application.
- For operation within a system the I/O interface of the printer can be used.

2.2 Technical Data

Applicator	**SQ 3200**
Operated with	**SQUIX 2, SQUIX 4.3, SQUIX 4, SQUIX 4.3 M, SQUIX 4 M**
Rotary cylinder	45° - 95°
Stroke cylinder mm max.	30
Depth F mm max. of a pad immersing	5
Weight packaging excluded kg	4.5
Consumption of power W max.	15
Compressed air bar	4.5
Performance approx.[1)]	20 labels/min

[1)] calculated using labels 40 mm high and a print speed of 100 mm/s

Tamp-on pads, blow-on pads

They are manufactured according to the size of a label.

Tamp-on pad	**A3200-1100**	
Operated with	**SQUIX 2**	**SQUIX 4.3, 4**
Label width mm	4 - 63	10 - 116
Label height mm	6 - 80	
Surface of an item	flat	
State of an item at the moment a label is applied	at rest	
Blow-on pad	**A3200-2100**	
Operated with	**SQUIX 2**	**SQUIX 4.3, 4**
Label width mm	10 - 63	10 - 116
Label height mm	10 - 80	
Surface of an item	flat	
State of an item at the moment a label is applied	at rest or in motion	

Table 1 Technical data

2.3 Device Overview

Front view

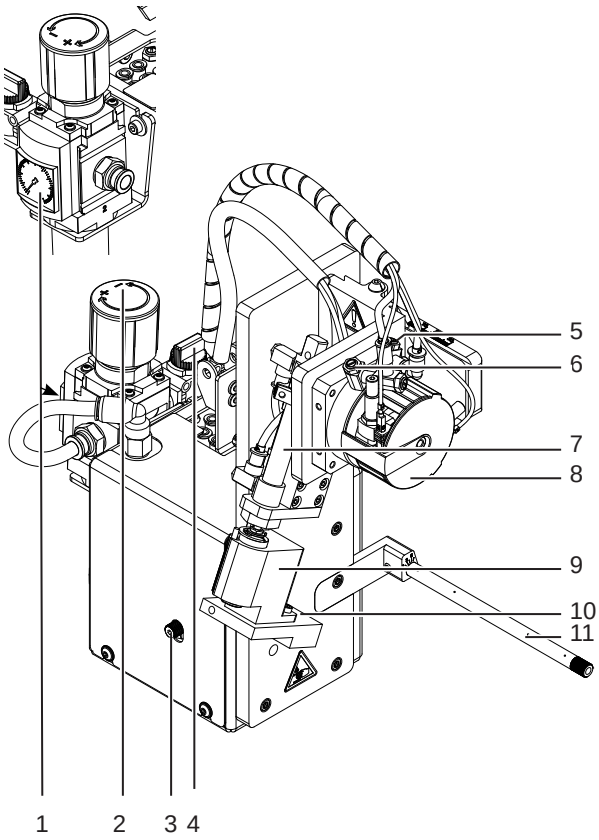


Fig. 2 Device overview - front view

1 Manometer on the compressed air maintenance unit
2 Setting valve on the compressed air maintenance unit
3 Knurled screw for mounting the applicator to the printer
4 Compressed air valve
5 Throttle valve turning cylinder inward motion
6 Throttle valve turning cylinder outward motion
7 Lifting cylinder
8 Turning cylinder
9 Pad - client specified
10 Pad holder
11 Blowtube for supporting air

Rear view

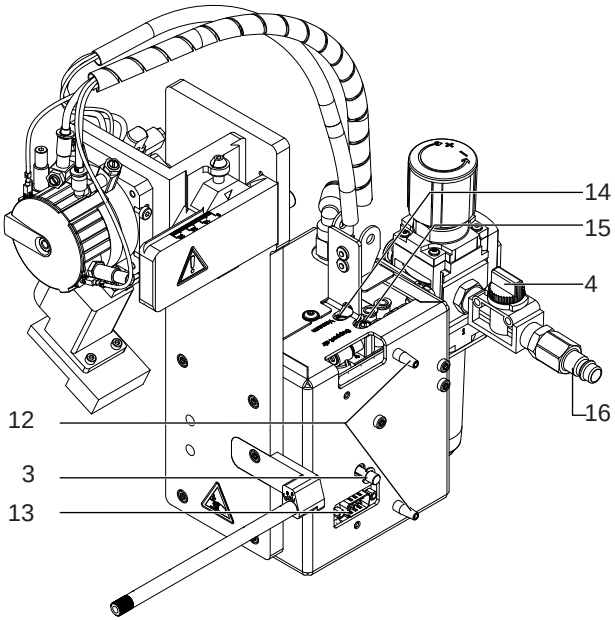
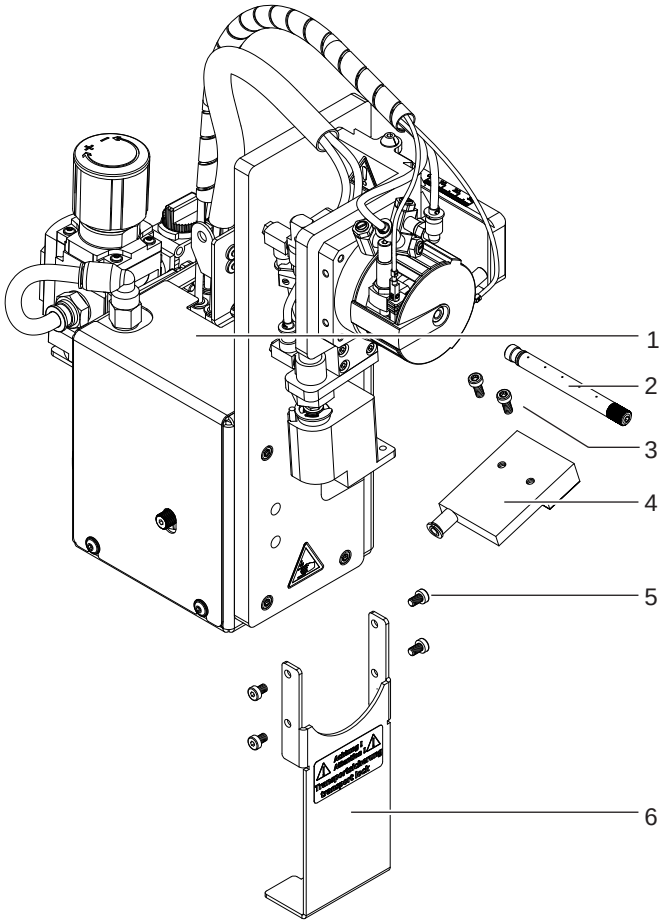


Fig. 3 Device overview rear view

12 Alignment pins
13 SUB-D 9 connection to the printer
14 Throttle valve vacuum
15 Throttle valve supporting air
16 compressed air connection

2.4 Contents of Delivery



1 Applicator
2 Blowtube (as ordered)
3 Cylinder screws
(within the scope of the delivery)
4 Pad (as ordered)
5 Cylinder screws for fastening the transport safety
6 Transport safety
7 Documentation

Fig. 4 Contents of delivery

Note!
Keep the original packaging for future transport or incase the unit needs to be returned.

Attention!
The device and printing materials will be damaged by moisture and wetness.
▶ Set up label printer with applicator only in dry locations protected from moisture and splashes.

3 Installation

3.1 Transportation Protection

The transportation protection of the applicator SQ 3200 fixes the movable parts in place to avoid potential harm to any persons and damage to the system and its surroundings.

Warning!
Before mounting, dismounting, servicing or adjusting disconnect the printer and applicator from any power and compressed air source to prevent any harm or damage by uncontrolled movement of parts of the applicator.

Warning!
Potential harm and damage to and from the applicator by improper use! The applicator may only be used if it is set up in a secure stable position connected to a SQUIX Series printer.

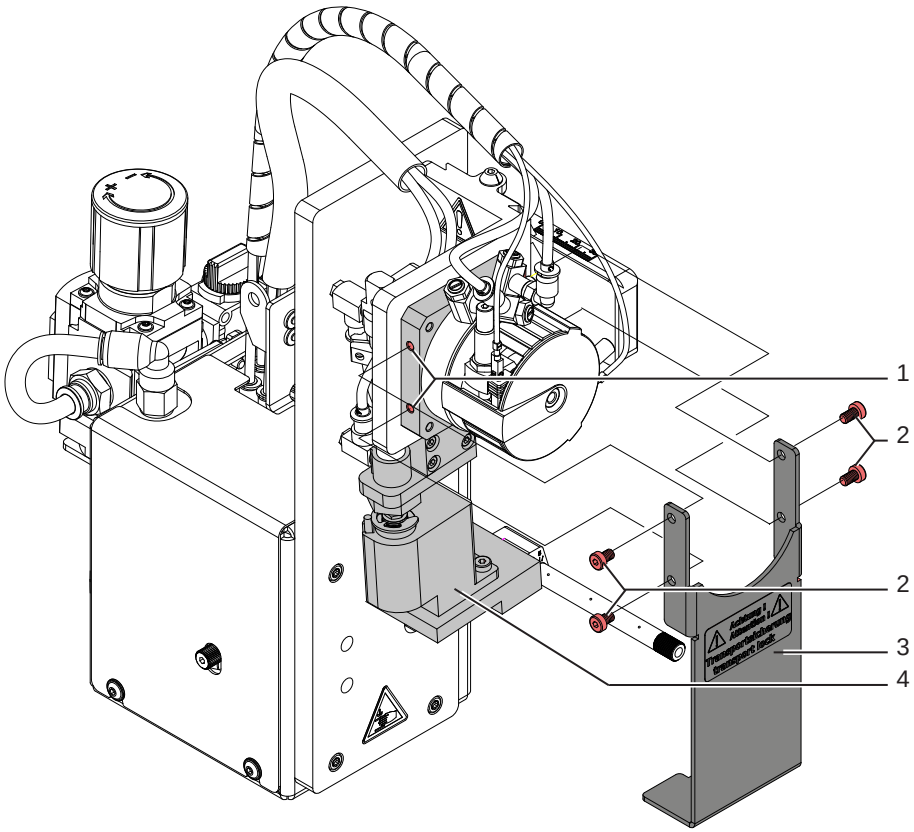


Fig. 5 Transportation protection

Removing the transportation protection

1. Loosen screw (2) from the transportation protection.
2. Remove the transportation protection (3).

Attention!
If the device needs to be transported always apply the transportation protection.
Store the transportation protection and screws while the device is not being moved.

Implementing the transportation protection

3 Move the pivot arm (4) so that the pad retainer fits into gap of the tranportation protection (3). This is almost vertically downward.

4 Place the transportation protection (3) so that the holes of the transportation protection (3) are over the threaded hole (1) on both sides of the turning cylinder socket.

5 Insert and fasten screw (2).

3.2 Mounting the Applicator to the Printer

Attention!

- ▶ **Disconnect the printer from the power supply before mounting the applicator!**
- ▶ **Ensure the printer is in a stable secure position!**
- ▶ **Connect the compressed air only after mounting the applicator to the printer!**

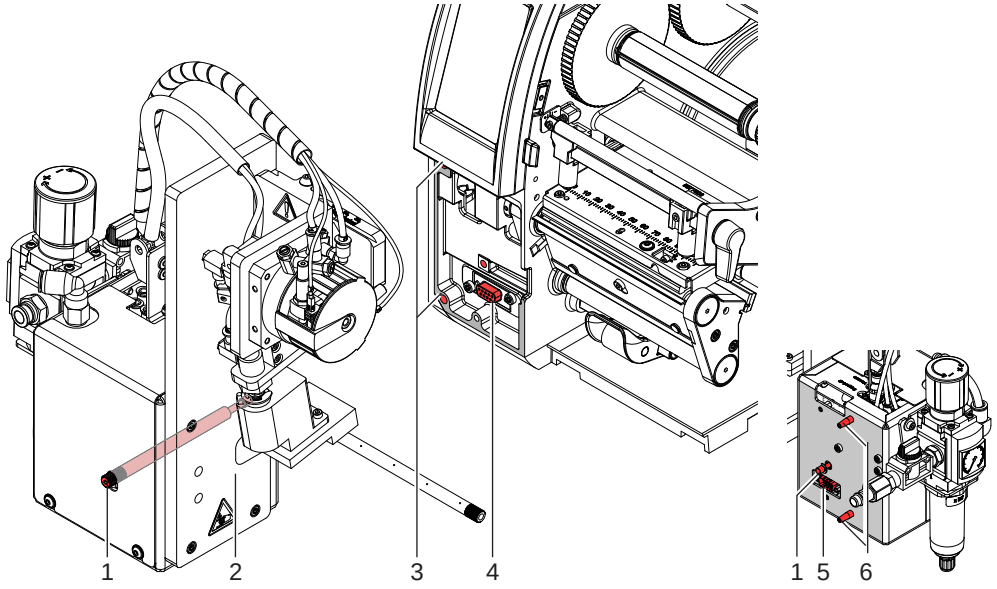


Fig. 6 Mounting the applicator

1. Slide the applicator (2) with the pins (6) situated on the rear, into the provided holes (3) of the printer.
2. Push the applicator (2) against the printer. This will cause the connector (5) to connect to its counterpart (4) on the printer.
3. Fasten the applicator (2) to the printer with the knurled screw.

3.3 Connecting the Compressed Air

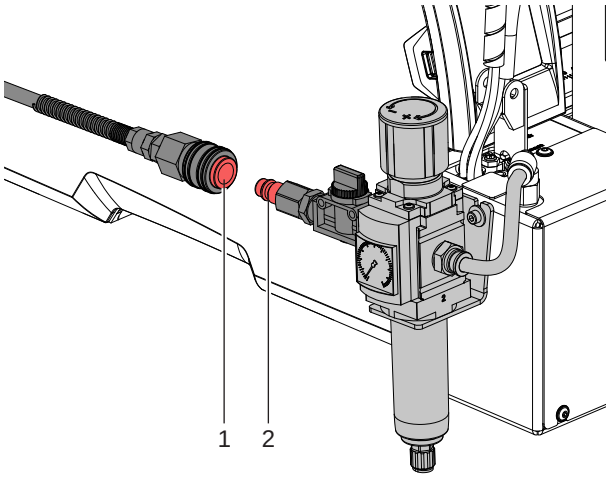


Fig. 7 Connect compressed air to the applicator

▶ Connect the compressed air supply line with a quick-release coupling NW 7.2 (1) to the nipple for coupling NW 7.2 of the applicator (2).

Attention!

The working pressure of the applicator is 4.5 bar. Outside the compressed air range of 4 - 6 bar, the application process is interrupted with an error message.

4.1 Test Mode without a Print Job

Fig. 8 Display

By alternating between buttons  and  on the display it is possible to simulate the labeling process without an active printing job.

- ▶ Push button  .
  This causes the feed of an empty label. Simultaneously the vacuum of the pad as well as the supporting air are activated. As soon as the label has securely arrived at the pad the supporting air is switched off.
- ▶ Push button  .
  When pushing this button the cylinder Z is extended into the labeling position. Reaching the labeling position is signalized by the triggering of the impact sensor. With that signal the vacuum is stopped and the label is applied to the product. With the application of the label the cylinder is contracted back into the starting position.

Note!

- ▶ **Use the printer configuration to find the best peel-off offset for the initiation.**

4.2 Test Mode with a Print Job

This method allows testing of the labeling process with actual printing data by using the  button.

- ▶ Send a print job.

The test mode is executed in two half cycles:

- ▶ Push the  button.
  Half cycle 1
  A label is printed. The vacuum of the pad as well as the supporting air (blow tube) are switched on. When the label has been picked up by the pad, the supporting air is switched off.
- ▶ Push the  button.
  Half cycle 2
  The pad is moved to the labelling position. The triggered impact sensor signals when the labelling position is reached. The vacuum is switched off as soon as the label is placed onto the product. Then, the pad is moved back into the starting position.

If the label is removed by hand after **half cycle 1** has been completed and the  button is pressed, **half cycle 1** will be repeated with the next label in the printing line.

Note!

- ▶ **Use the software to find the best peel-off offset for the initiation.**

4.3 Standard Operation

- ▶ Before starting the labeling process ensure that all connections are securely established.
- ▶ Load printing and labeling material. Ensure that the locking system is closed. ▷„6.1 Inserting Materials“.
- ▶ Open the compressed air shut-off valve.

Attention!

- ▶ **Before switching on the printer ensure that the pad is not blocked by a label as this may cause the vacuum sensor to be configured incorrectly.**

- ▶ Switch on the printer.

Note!

If the pad is not in the starting position when the printer is switched on an error message will appear on the display.

Press the pause button on the printer to cancel the error state. The applicator will move into the start position and is ready for work.

- ▶ Push button  n the printer menu.
  A synchronization feed is initiated. The processed labels have to be removed manually. After a few seconds the printer carries out a short backfeed to position the front edge of the next label at the printing line.

Note!

This synchronization also has to be carried out when the print job has been interrupted with the cancel  **button.**

Synchronizing is not necessary when the print head was not lifted between print jobs. This also applies if the printer was powered down between print jobs.

- ▶ Start a print job.
- ▶ Start the labelling process via PLC interface.

Error messages during labelling process are shown in the display of the printer. ▷ "Error Messages"

4.4 Cleaning

Attention!

Never use solvent or abrasive.

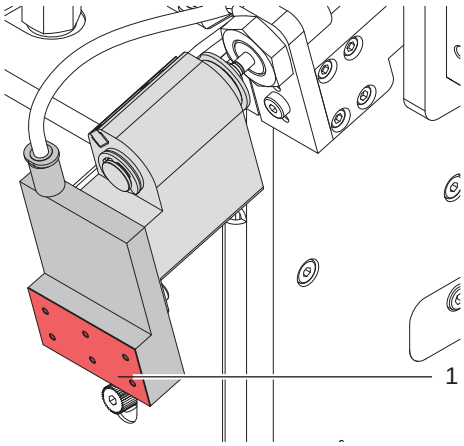


Fig. 9 Reinigung des Stempels

- ▶ Clean the outside surfaces with multi purpose cleaner.
- ▶ Remove dust particles and leftover label pieces with a soft
- ▶ brush and/or vacuum cleaner.
- ▶ The slide foil (1) requires regular cleaning as the most dirt
- ▶ is deposited here.

Note!
The settings in the printer configuration are basic settings for the specific printer-applicator combination. If the applicator or printer is changed, a new setting is required.

Adaptation to the respective print job must be carried out primarily via the software. Additional offset values are available here. The offset values from the device settings and the software add up during operation.

For detailed information about printer configuration ▷ Printer configuration manual

5.1 Setting in the printer menu

Note!

This guide only describes the specific contents of the *Labeling* menu.

More information about configuration ▷ Printer configuration manual.

▶ Start menu.

▶ Select  *Setup* >  *Labeling.*

Parameter	Meaning	Default
 *Cycle sequence*	Setting the application mode *Print-Apply / Apply-Print* *Print-Apply*: An external start signal releases the print of a label and following the application of the label. After a cycle is complete, the pad without label waits in the start position. *Apply-Print*: An extra signal starts the print of the first label and the transfer of the label to the pad. The external start signal releases the application of the label and following the print and transfer of the next label. After a cycle is complete, the pad with a label is in the waiting position.	*Print-Apply*
 *Peel-off position*	Shift the position of the dispensed label relative to the dispensing edge. The setting can also be adjusted by the software. The settings of configuration and software are added together.	*0.0 mm*
 *Support delay on*	Setting the switch-on delay (max. 2,5 s) for the supporting air between print start and switching on the supporting air. The delay prevents swirling at the front of the label and, consequently, avoids faults when the label is being picked up from the printer.	*0 ms*
 *Support delay off*	Setting the switch-off delay (max. 2,5 s) for the supporting air between the end of label forwarding and switching on the supporting air. The delay can be useful to separate the rear edge of the label from the carrier to avoid errors and to improve the accuracy of label positioning	*270ms*
 *Start delay*	Delay (max. 2,5 s) between start signal and the start of an labelling cycle. Allows e.g. the use of product sensors at conveyors.	*0 ms*
 *Lock time*	All start signals coming in following the first start signal are ignored when they arrive within the lock time (max. 2,5 s).	*0 ms*
 *Blow time*	∗ Only at *Transfer mode = Blow on* Switch-on time (max. 2,5 s) of the blowing air for the label transfer	*1000 ms*
 *Roll-on time*	∗ Only at *Transfer mode = Roll on* Dwell time (max. 5 s) of the pad in the labelling position	*1000 ms*
 *Transfer mode*	Setting the operation mode *Stamp on, Roll on, Blow on*	*Stamp on*

Parameter	Meaning	Default
 *Vacuum control*	Setting the label transfer check from printer to pad and from pad to product by the vacuum sensor	*On*
 *Cleaning blow*	Activation of a short blow impulse after the application of the label to clean the suction channels.	*On*
 *Vacuum delay*	*On* - The vacuum will be switched on after the label feed is completed. *Off* - The vacuum will be switched on when the label feed starts.	*Off*
 *START Mode*	Define the condition for triggering the START signal. Edge: from low to high Level: high	*Edge*
 *Pad empty delay*	Delay after the start of the backward movement of the cylinder movement before checking whether the label has been deposited.	*100 ms*

Table 2 Menu *Labelling*

5.2 Special JScript Commands

Note!
Some parameters of the menu *Setup > Labelling* **can be changed or overridden by JScript commands in a print job.**
Numerical entries must be entered in increments of ten.
These changes are valid for the current print job only.

Attention!
The meaning of the commands O Ax=y in the following table are valid for SQ 3200 only.
For other applicators the meaning of these commands are different.

Command O Ax=y

x	Meaning	Value range y	Default	Example
0	Support delay on in ms	0-2500	0	O A0=500
1	Support delay off in ms	0-2500	270	O A1=500
2	Start delay in ms	0-2500	0	O A2=500
3	Lock time in ms	0-5000	0	O A3=500
4	Blow time in ms	0-2500	1000	O A4=500
5	Roll-on time in ms	0-5000	1000	O A5=1500
6	Transfer mode	Stamp on / Roll on / Blow on	Stamp on	O A6=Stamp on
8	Vacuum control	on / off	on	O A8=on
10	Cleaning blow	on / off	on	O A10=on
11	Vacuum delay	on / off	off	O A11=off
18	START Mode	Edge / Level	Edge	O A18=Edge
19	Pad empty delay in ms	0-1000	100	O A19=200

Table 3 O Ax commands

Attention!
The y-values must be set as shown in the table regarding blanks and case sensitivity.

6 Error Messages

6.1 Error Messages of the Printer

For detailed information about printer errors (e.g. 'Paper out', 'Ribbon out', etc.) ▷ Check the operator's manual of the printer.

Error treatment:

▶ Clearing the error results.

▶ Press the **feed**  key to synchronize the label feed, remove the left over labels manually.

▶ The following options are available to exit the error state:

Continue	After rectification of the cause of the error the print job commences with the next label of the printing job.
Repeat	After rectification of the cause of the error the print job commences with the last label of the printing job.
Cancel	The current print job will be canceled.

6.2 Error Messages of the Applicator

The following table contains an overview of applicator specific error messages and their possible causes. It also suggests methods to resolve the error states:

Error Message	Possible Cause	Possible Solution
Air pressure too low: (value) bar	Air pressure to low (under 4 bar)	Increase pressure 4 up to 6 bar
Air pressure too high: (value) bar	Compressed air supply delivers too high a value (over 6 bar)	Reduce pressure 4 up to 6 bar
Label not deposited	Label has not been placed onto the product; while the pad is moving back the label is still sticking to the pad.	Check the position of the product. Check the lift distance (stopper)
Not in home position after power on	Tamp is out of the hoe position	Quit the failure message, Applicator will move to the home position.
Home position not reached within (current value) s	Tamp did not reach the home position in the limit after the cylinder return movement began	Check the compressed air settings (especially lower throttle valve cylinder) Checking the impact sensor 2 (service) ➞ Sensor adjust or change
Home position left unauthorized	The cylinder is no longer in the start position or the sensor is not triggered	Quit the failure message, Applicator will move to the home position.
Externer Stop	Labeling process was interrupted by the PLC I/O interface with a STOP signal.	Delete the source for the STOP signal
Label not taken	Label has not been picked up properly by the pad	Check the peel-off parameter an the tamp position in realation to the dispense plate of the printer
Label lost during transport	Label fell off the pad before it could be placed onto the product	Clean the tamp check the vacuum
End position not reached within (current value) s	Tamp did not reach the end position in the limit after the cylinder return movement began	Check the compressed air settings (especially lower throttle valve cylinder) Checking the impact sensor 2 (service) ➞ Sensor adjust or change
Sensor information not plausible	Sensors for start and end position are activated at the same time	Check the sensors (service)
Intermediate position not reached within (current value) s	Tamp did not reach the intermediate position in the limit after the cylinder movement began	heck the compressed air settings (especially lower throttle valve cylinder) Checking sensor (service) ➞ Sensor adjust or change

Table 4 Error messages of the applicator

Error Treatment:

- ▶ Clear the error state.
- ▶ In order to clear the error state press **continue, repeat** or **cancel.**
  Continue with the next label in the printing queue.
  Repeat the print of the label causing the error. Only applicable with error *Vac. plate empty.*
  Cancel the current print job.

Warning!

After the error has been resolved the pad will immediately move back to the starting position!

Danger of injury to hands and fingers by the moving pad!

- ▶ **Do not reach into the area of the moving pad and keep long hair, loose clothes, and jewelry away.**

Reprinting a label, interrupted by an error, is not possible without a new printing job.

- ▶ In the mode "apply/print" before the standard cyclic operation can commence the signal "print first label" must be sent or push the  key to send a printed label to the pad.

7 Licences

7.1 EU Declaration of Conformity

cab Produkttechnik
GmbH & Co KG
Wilhelm-Schickard-Str. 14
D-76131 Karlsruhe
Germany

EU Declaration of Conformity

We declare herewith that the following device as a result of design, construction and the version put in circulation complies with the relevant fundamental regulations of the EU Rules for Safety and Health. In the event of any alteration which has not been approved by us being made to any device as designated below, this statement shall thereby be made invalid.

Device	**Applicator**
Type	**SQ 3200**
Applied EU Regulations	Applied Standards
Directive 2014/30/EU relating to electromagnetic compatibility	**EN 55032:2015+A11:2020**
	EN 55035:2017+A11:2020
	EN 61000-6-2:2005/AC:2005
Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment	**EN IEC 63000:2018**
Commission delegated directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of restricted substances	
Signed for, and on behalf of the Manufacturer **cab Produkttechnik GmbH & Co KG** **Wilhelm-Schickard-Str. 14** **D-76131 Karlsruhe**	Karlsruhe, 20.03.2024 **Klaus Bardutzky** Managing Director

7.2 EU Declaration of Incorporation

cab Produkttechnik
GmbH & Co KG
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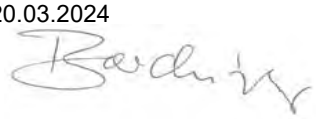
D-76131 Karlsruhe
Germany

EC Declaration of Incorporation

We declare herewith that the following „partly completed machinery“ as a result of design, construction and the version put in circulation complies with the essential requirements of the Directive 2006/42/EC on machinery :
Annex I, Article 1.1.2, 1.1.3, 1.1.5, 1.1.6, 1.2.1, 1.3.2, 1.5.2, 1.5.8, 1.6.3, 1.7
In the event of any alteration which has not been approved by us being made to any device as designated below, this statement shall thereby be made invalid.

Device	**Applicator**
Type	**SQ 3200**
Applied EU Regulations	Applied Standards
Directive 2006/42/EC on machinery	**EN ISO 12100:2010**
	EN ISO 13849-1:2015
	EN 62368-1: 2014/AC:2015
Other Relevant Directives • **Directive 2014/30/EU relating to electromagnetic compatibility** • **Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment**	
Person authorised to compile the technical file	**Marcel Michalski** **Am Unterwege 18/20** **99610 Sömmerda**
Signed for, and on behalf of the Manufacturer **cab Produkttechnik GmbH & Co KG** **Wilhelm-Schickard-Str. 14** **D-76131 Karlsruhe**	Karlsruhe, 20.03.2024  **Klaus Bardutzky** Managing Director

The product must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive on machinery.
The documents according annex VII part B from the incomplete machinery are created and will commit to state agencies on request in electronic kinds.