

# S ONE



**User Manual**  
**Rev 003**



## FCC Notice

The S One cutters have been tested and found to comply with the limits for a Class A digital device, under part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This cutter generates, uses, and can radiate radio frequency energy. If not installed and used following the instruction manual, the cutter may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## DOC Notice

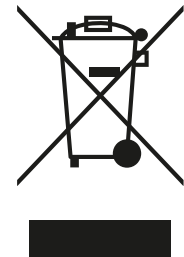
The S One cutters comply with the CAN ICES-003 Class A limits for Information Technology Equipment.

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## EU Waste Electrical and Electronic Equipment (WEEE) Directive

The symbol (right) is shown on this product. It indicates that the product should not be placed in municipal waste but should be disposed of separately. Electrical and electronic equipment can contain materials, which are hazardous to the environment and human health, and therefore should be disposed of at a designated waste facility or returned to your retailer for the appropriate recycling to take place.



If you wish to dispose of this product and the product still functions, please consider recycling/reusing it by donating it to a charity shop, selling it or exchange parts of it with your retailer.

## Registering Your Cutter

Please register your cutter on the following link:

<https://www.summa.com/support/product-registration/>

## Contact Information

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# S ONE

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## **Congratulations on your purchase of the new cutter!**

The S One cutters are made for sign makers, demanding only the very best cutting quality.

S One is Summa's most popular and affordable line of vinyl cutters. Their characteristics and performance match those of the most excellent cutters. They offer tracking accuracy, speed and features not found in other affordably-priced cutters.

This manual is a reference guide for setting up and operating the S One Series cutters.

# S ONE

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## 1 SETUP

### 1.1 Safety

#### 1.1.1 General

The purpose of the user's manual is not only to explain the operating procedures of this machine, but it also provides the owner, users, and operators with precaution procedures for safe and proper machine operation for its intended purpose. All information in this manual must be read and understood before any attempt is made to operate the machine.

The manufacturer has no direct control over the machine operation and application. Proper safety practice is the sole responsibility of the owner, user, and operator. All instructions and safety warnings in this manual are based upon the use of this machine under proper operating conditions without alterations from the original design.

Any use of the cutter that is beyond the capabilities of the combination knife/material is considered as improper use and may result in injury and serious damage to the machine and will lead to loss of warranty.

#### 1.1.2 Symbols used in the manual



Warning with dark (red) symbol: Refers to immediate threat that can cause serious injuries and effects on health and safety.



Warning with light (yellow) symbol: Refers to a dangerous situation that can cause injuries and serious damage to the machine.



Attention with dark (red) symbol: Refers to useful information to prevent damage to the equipment and prolong the service life of the machine.



Attention with light (yellow) symbol: Refers to useful tips to enhance the user friendliness and make the work significantly easier.



Note: Can be considered as a general tip; something that is useful to know.

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### 1.1.3 Safety precautions



**WARNING:** This equipment is not suitable for use in locations where children are likely to be present.



**WARNING:** The S One cutters use razor-sharp knives. Touching the knife with bare hands may cause injury. Do not touch the knives while the machine is cutting.



**WARNING:** There is a risk of injury from being caught or trapped in moving machine parts. Keep hands, hair, clothing and jewellery away from moving parts. Do not wear jewellery, loose clothing, scarves, open jackets or shirtsleeves.

The entire base plate should be considered as a dangerous area when the cutter is switched on and off. The tool carriage can move from the left to the right and the media grit rollers are sharp and can grab loose objects, clothing or body parts.



**NOTE:** Make sure to observe all the caution labels on the cutter.

The cutter constantly measures the current through the motors. If the machine detects the current is too high, then the current will be cut off to the motors and a fatal error message will be displayed on the control panel.

There are no user-serviceable parts inside the S One cutters. For servicing refer to qualified personnel only.

Turn off the cutter and contact a service representative in any of the following cases:

- There is visible mechanical damage.
- The power cord is damaged.
- The cutter has been damaged by an impact.
- Liquid was spilt on the cutter.
- There is a strange noise, smoke or an unusual smell coming from the cutter.
- The cutter has been dropped.

### 1.1.4 Electrical shock hazard

#### 1.1.4.1 Grounding (“Earthing”)



**WARNING:** The wall sockets, into which the cutter is plugged-in, must be of the grounded type. The grounded conductors, serving the wall socket, must be properly connected to the ground.

For emergency access, the cutter should be installed near the socket-outlet for easy access.

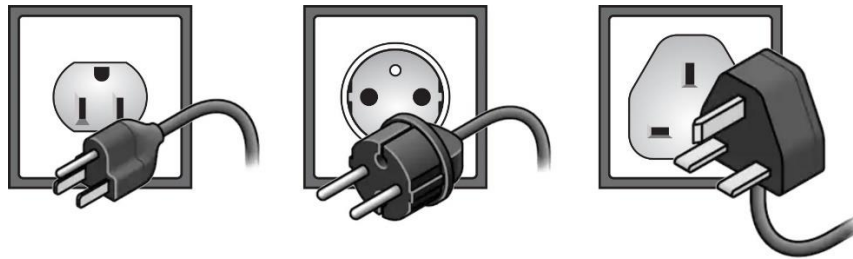


FIG 1-1

EXAMPLE OF PROPERLY GROUNDED PLUG-SOCKET COMBINATION

#### 1.1.4.2 Operating voltage

The power supply detects the line voltage and switches automatically between 100V and 240V.



**WARNING:** The built-in power supply operates at hazardous voltages capable of causing serious injury or death. Unplug the equipment when not used for an extended period.



**WARNING:** Before changing the fuse(s), make sure that the cutter is completely disconnected from its power source.



**WARNING:** For continued protection against fire hazard, only replace with fuses of the same type and rating: T2A H250V.

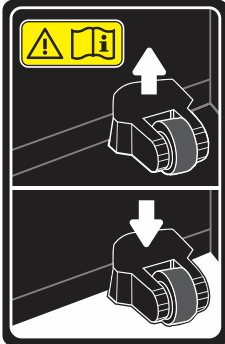
### 1.1.5 Warning labels on the machine



Warning label regarding the fuse. For continued protection against fire hazard, only replace with fuses of the same type and rating.

Double pole/neutral fusing.

This label is stuck near the power inlet, on the rear.



Caution: Always leave the pinch rollers in the upper position when the cutter is not in use.

This label is stuck on the right-side plate.



The S One cutters use razor-sharp knives. Touching the knife with bare hands may cause injury.

Hazardous moving part. Keep your fingers and other body parts away from this area.

This label is stuck on the cutting head.

### 1.1.6 Operating environment

Environmental conditions can significantly affect the machine's performance. The environmental conditions of the machine (without media) are as follows:

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<b>Operating Temperature</b>	15 to 35° C	59 to 95° F
<b>Storage temperature</b>	-30 to 70° C	-22 to 158° F
<b>Relative humidity</b>	35 - 75 %, non-condensing	35 - 75 %, non-condensing

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The environmental conditions of the used media may be stricter than those of the machine itself. Please refer to the documentation about the used media.

Moreover, make sure that the media has had enough time to acclimatize.



**NOTE:** Keep the cutter away from direct sunlight or a strong indoor light source. The optical sensors in the machine may be affected, thus causing unexpected behaviour of the cutter.

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## 1.2 S One Cutter Components

### 1.2.1 The Cutter as viewed from the front

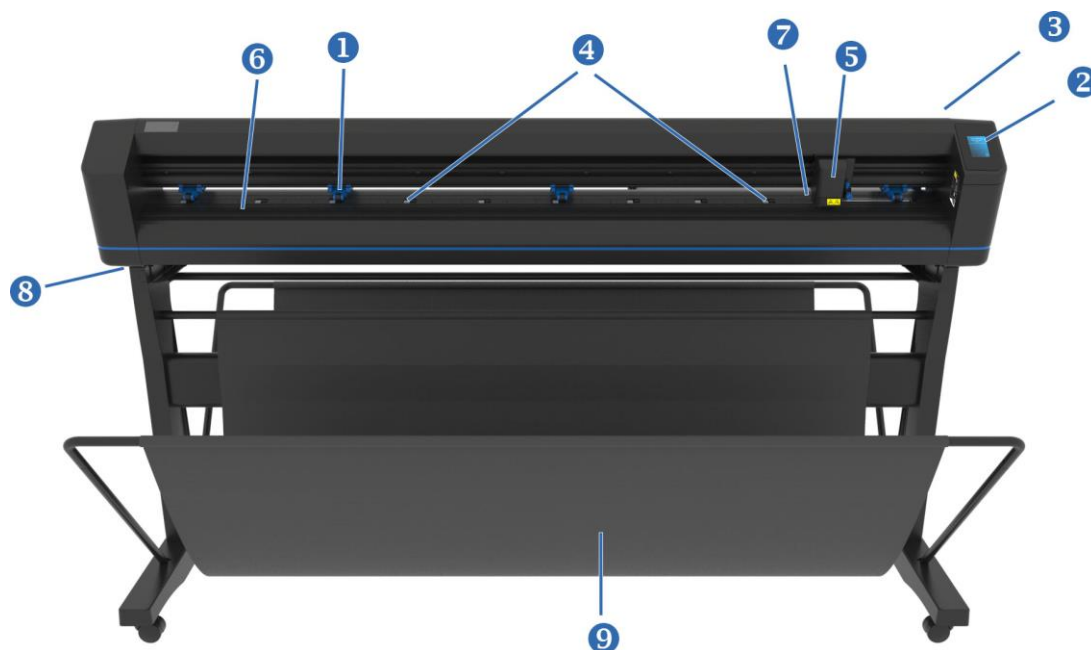


FIG 1-2  
S ONE CUTTER FRONT VIEW

- 1. Pinch rollers:** The pinch rollers clamp the media to the grit rollers to ensure accurate tracking. Larger models have one or two extra pinch rollers to ensure that wide media stays flat in the middle. The extra rollers in the middle can be enabled or disabled.
- 2. Touchscreen:** All cutter activity can be initiated from the touchscreen. It displays information about the cutter's current status and/or actions that need to be taken.
- 3. Pinch roller lever:** This lever is used to raise and lower the pinch rollers for media loading.
- 4. Media grit rollers:** The media grit rollers only move the media when the pinch rollers are in the "down" position. The larger the model, the more small sleeves.
- 5. Tool carriage:** The tool carriage is the mount for the knife holder, pen or pouncing tool. It also holds the Optical POSitioning sensor (OPOS).
- 6. Cutting strip:** A self-healing orange strip helps avoid any damage to the knife tip when no media has been loaded. Since cutting is done on the cutting strip, the strip must remain intact.
- 7. Media sensor:** A media sensor behind the right sleeve is used to detect the end of the loaded media.
- 8. Screws to secure the cutter base:** Make sure all screws are secured at each side before the cutter is used.
- 9. Media basket** to recover the cut material.

### 1.2.2 The Cutter as viewed from the back

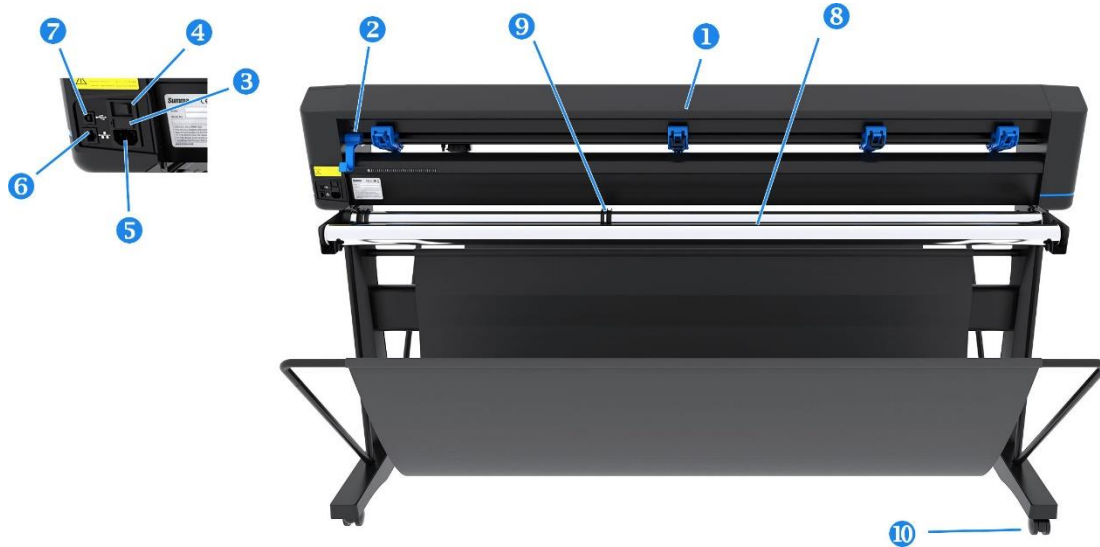


FIG 1-3  
S ONE CUTTER REAR VIEW

1. **Pinch rollers:** The pinch rollers clamp the media to the drive system to ensure accurate tracking. Larger models have one or two extra pinch rollers to ensure that wide media stays flat in the middle. The extra rollers in the middle can be enabled or disabled.
2. **Pinch roller lever:** This lever is used to raise and lower the pinch rollers for media loading.
3. **The fuse box:** The fuse is located at the right side of the power entry module. Check the specification section to see which fuse is used in the S One cutter.



**WARNING:** For continued protection against fire hazard, only replace with fuses of the same type and rating.

4. **Power On/Off switch:** This rocker switch, situated in the middle of the power entry module, powers the cutter on or off. To switch on the power, press the "I" side of the rocker switch. To switch off the power, press the "O" side of the rocker switch.
5. **AC power cord receptacle:** It is located on the left-hand side of the power entry module. The power-up procedure is explained in detail in section 1.3. Always use a power cord that was delivered with your cutter.
6. **USB port:** This interface is based on the standards specified in Universal Serial Bus Specifications Revision 1.1. It allows high-speed bi-directional communication between the host computer and the cutter.
7. **Ethernet port RJ45:** For connecting the cutter to the LAN.
8. **Media support rollers:** Rotating support rollers for the media roll.
9. **Roll media core holders:** The two core holders serve to keep the media roll in place when media is pulled from the roll.
10. **Casters:** The casters on the stand are equipped with locking brakes. Once the cutter has been moved to its new location, press the brakes with your foot to lock the casters.

### 1.3 Powering-on the cutter



**WARNING:** Make sure the power switch is turned off before connecting the power cord (the “0” side of the ON/OFF rocker switch should be pressed).



**WARNING:** Do not use the power cord if it is visibly damaged. Disconnect the power cord by pulling the plug, not the cable.



**WARNING:** Keep fingers and other body parts away from the cutting area. There are hazardous moving parts.

1. Plug the female end of the AC power cord into the receptacle, located in the power entry module on the cutter's rear panel.
2. Plug the male end of the AC power cord into a properly grounded wall socket.
3. Power on the cutter by pressing the “I” side of the ON/OFF rocker switch, located on the power entry module on the rear panel.
4. The touchscreen will activate, and the initialization process will begin. If media is loaded, then the cutter will check the size and load the media.



FIG 1-4

MEDIA IS LOADED AND THE CUTTER IS READY

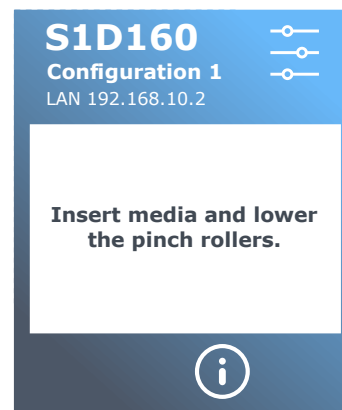


FIG 1-5

CUTTER IS READY AND NO MEDIA IS LOADED



## 1.4 Connecting the Cutter to a Computer

The S One cutters support Ethernet and USB connectivity. When both ports are connected at the same time, the port that receives the data first will remain active and the other port will be deactivated.

### 1.4.1 USB connection

The USB cable should be 5 meters (16 feet) or less in length. The connector on the cutter side of the cable should be USB series B 4-pin. The connector on the computer side of the cable should be USB A 4-pin.

#### 1.4.1.1 Connecting the S One cutter to a PC, using a USB cable



**ATTENTION:** When installing a cutter, make sure you have administrative rights and UAC is deactivated or set it to its lowest level.

1. Power off the cutter.
2. Go to [www.summa.com/en/support/software-firmware](http://www.summa.com/en/support/software-firmware) and download and install the USB device driver for the S One cutter.
3. Wait for the driver to install.
4. Connect one end of the USB cable to a USB port on the computer.
5. Connect the other end of the USB cable to the USB port on the back of the cutter.
6. Power on the cutter and return to the computer.
7. The Found New Hardware Wizard should appear on the computer screen and install the USB driver.
8. Click "OK" and follow the instructions, provided by the Wizard.
9. Restart the computer.



**ATTENTION:** When connecting a cutter to a computer for the first time, using the USB cable, the computer will detect the cutter and install the USB driver if the setup program was run. If the setup program was not run before connection, then install the program while the cutter is connected and switched on. After the program has run, the computer will detect a new device and install the correct driver automatically.



**NOTE:** To connect more than one cutter to one computer, see section 4.6.3

### 1.4.1.2 Connecting the S One cutter to a Mac, using a USB cable

- Mac OSX

Most recent cutting software does not need a driver installation when a computer is connected to the cutter. The software that controls the driver is built into the cutting software.

### 1.4.2 Wired Ethernet connection



**ATTENTION:** The Ethernet cable should be a shielded CAT6 Ethernet cable.

A couple of parameters need to be set when connecting a cutter to the Ethernet. It is best to ask the network administrator whether a static address is needed or if a DHCP server is used. If a static address is used ask for the address and the subnet mask.

#### 1.4.2.1 Use static address:

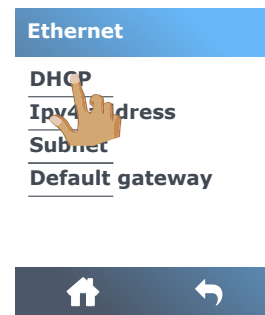
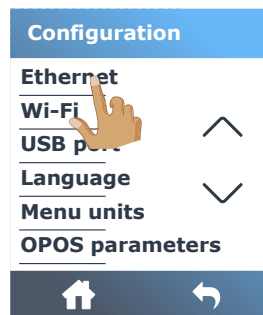
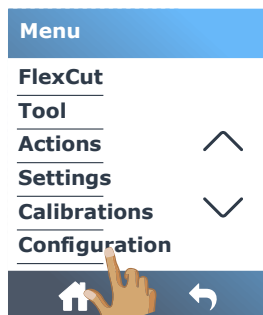
The static address that you received will be used in the software to drive the cutter. It also has to be set in the cutter itself.



**NOTE:** We recommend using a static IP address.

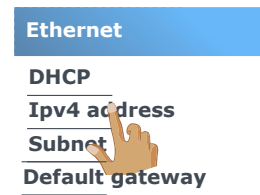
1. Connect the Ethernet cable and power on the cutter (see section 1.3).

2. Tap .



3. Scroll down with the arrow 4. Tap *Ethernet*.  
and tap *Configuration*.

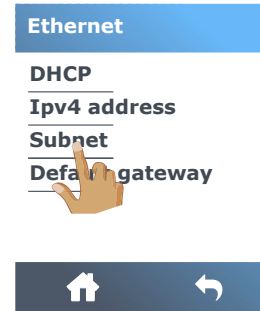
5. Tap *DHCP*.



6. Tap *Off*.

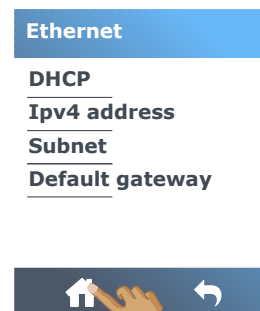
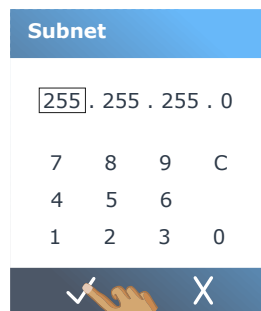
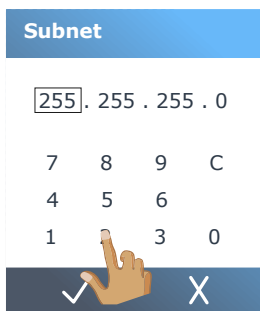
7. Tap  to confirm.

8. Tap *IPv4 address*.




9. Set the address correctly. 10. Tap  to confirm.

11. Tap *Subnet*.



12. Set the address correctly. 13. Tap  to confirm.

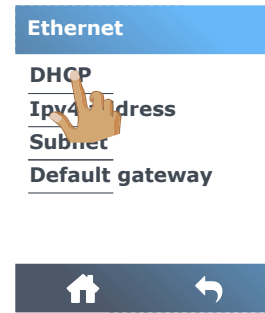
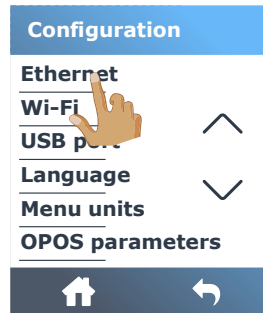
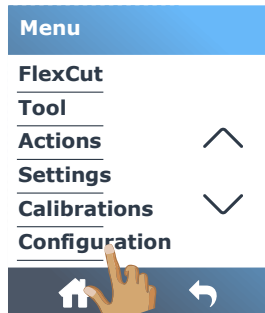
14. Tap  to return to the home screen.

15. Reboot the cutter.

### 1.4.2.2 In case the DHCP server is used:

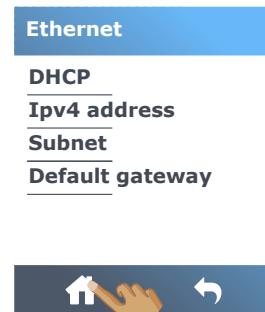
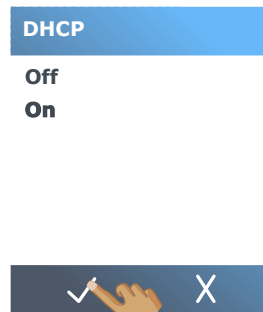
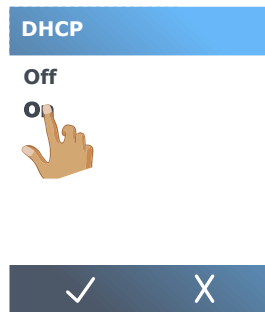
1. Connect the Ethernet cable and power on the cutter (see section 1.3).

2. Tap .




3. Scroll down with the arrow and tap *Configuration*.
4. Tap *Ethernet*.

5. Tap *DHCP*.



6. Tap *On*.

7. Tap  to confirm.

8. Tap  to return to the home screen.

9. Reboot the cutter.

The assigned IP address should now be visible in the status and can be used in the cutting software.



**NOTE:** If the DHCP server is used, then the IP address that is assigned to it can be changed if the cutter is not used for a time longer than the lease time set in the DHCP server (check with your IT admin for details).

### 1.4.3 Wi-Fi (optional – region dependent)



**NOTE:** The Wi-Fi option is deactivated by default and can be activated with a code. This code also activates the barcode option. Check section 1.7. for activation.

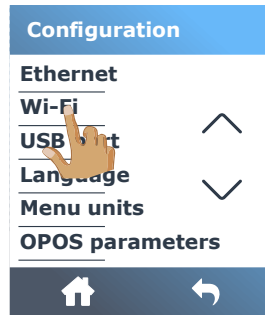
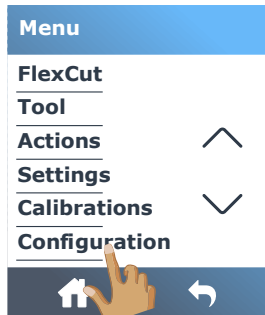
The S One can have a Wi-Fi connection as an option in certain parts of the world. If you live in a region where Wi-Fi is not an option, then the message “Wi-Fi not available in your region” will appear.

#### 1.4.3.1 Default setting

Wi-Fi is default set to use DHCP so the only thing that has to be done is to connect to the correct Wi-Fi network that is broadcasting its SSID (network name).

1. Power on the cutter (see section 1.3).

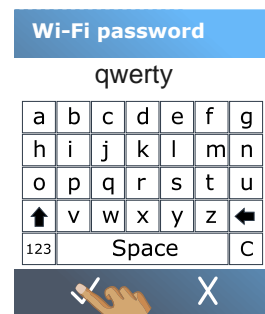
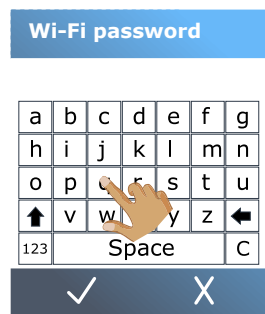
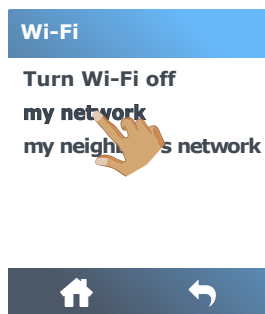
2. Tap .



3. Scroll down with arrow and tap *Configuration*.


4. Tap *Wi-Fi*.

5. Tap *Networks*.



6. Tap the correct network.
7. Enter the password.

8. Tap  to confirm.

9. Tap  to return to the home screen.

1.4.3.1 Fixed IP address setting

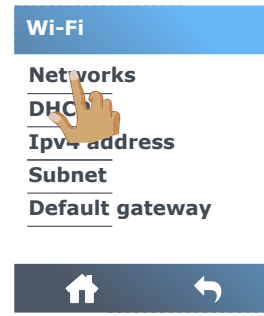
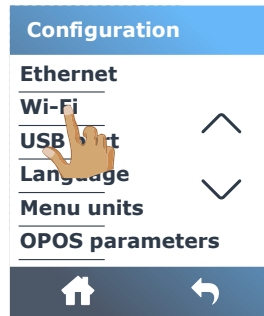
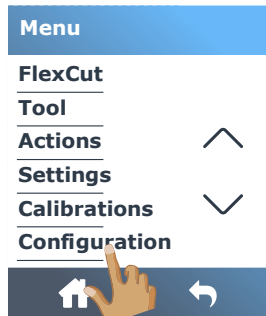
Ask the network administrator for the address and the subnet mask if a static address is used.



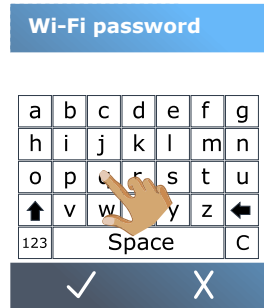
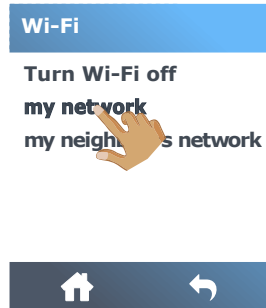
**NOTE:** It is recommended to use a static IP address.

1. Power on the cutter (see section 1.3).

2. Tap .



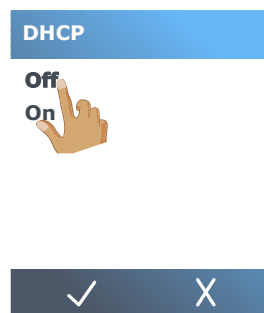
3. Scroll down with the arrow and tap *Configuration*.



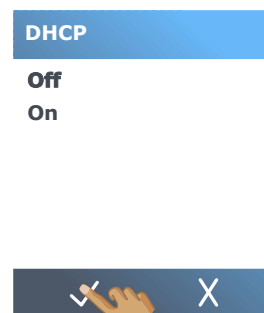
5. Tap *Networks*.



6. Tap the correct network. 7. Enter the password.



8. Tap  to confirm.



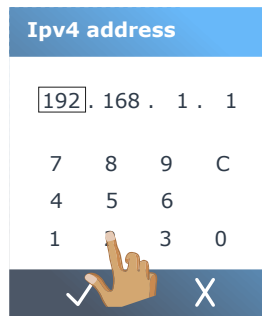
9. Tap *DHCP*.

10. Tap *Off*.

11. Tap  to confirm.



12. Tap *IPv4 address*.



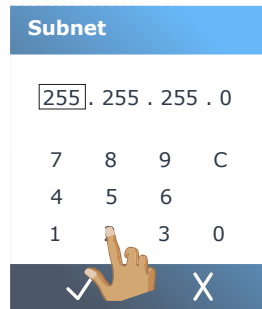
13. Set the address correctly.



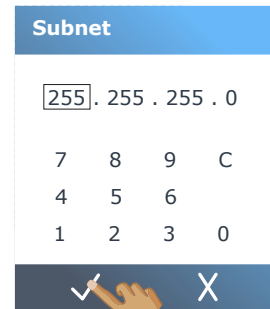
14. Tap  to confirm.



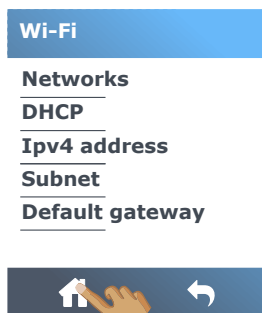
15. Tap *Subnet*.




16. Set the value correctly.



17. Tap  to confirm.



18. Tap  to return to the home screen.

## 1.5 Loading Media

The following procedures mainly apply to the use of roll media. If you are using sheets, there are two options:

1. For long sheets: roll up the sheet, so that the alignment is identical to the one of a roll.
2. For short sheets: the alignment is not so important. If the sheet is cut off perpendicularly, it can be aligned to the front border.

### 1.5.1 Pinch roller positioning

Proper movement of the media is only possible if the media is driven by the two outer pinch rollers, which are correctly located over two grit rollers.

The pinch rollers are lowered or raised simultaneously using the pinch roller lever arm, located on the rear of the cutter. The pinch rollers must be lifted to allow vinyl loading, during which the media is fed from the rear of the cutter to the front. When raised, the pinch rollers can be moved manually to the left or the right along the pinch roller shaft.



**ATTENTION:** Always make sure that the pinch rollers are fully raised before sliding them to the left or right. Hold them by their sides from the front of the plotter, not from the rear of the plotter.

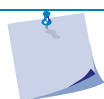
The pinch rollers **MUST** be positioned correctly and lowered onto the media before an automatic load sequence is initiated. Make sure all the pinch rollers are positioned above a grit roller. The outer left pinch roller should be clicked in one of the detents, situated under a white triangular label. The outer right pinch roller should be positioned somewhere over the long grit roller. The click positions are located at the edges of the grit roller (area marked with a white triangular label).



FIG 1-6  
POSITION PINCH ROLLER



**ATTENTION:** Always leave the pinch rollers in the “up” position when the cutter is not in use. Leaving the pinch rollers in the “down” position for a long time will result in a flat spot in the pinch rollers, which will seriously [negatively] affect tracking performance and cutting quality.



**NOTE:** When the pinch rollers are raised during a job, the cutter will immediately stop and move the carriage to the right side.



### 1.5.2 Loading media

1. Raise the pinch rollers using the pinch roller lever arm, which is located at the rear of the cutter.

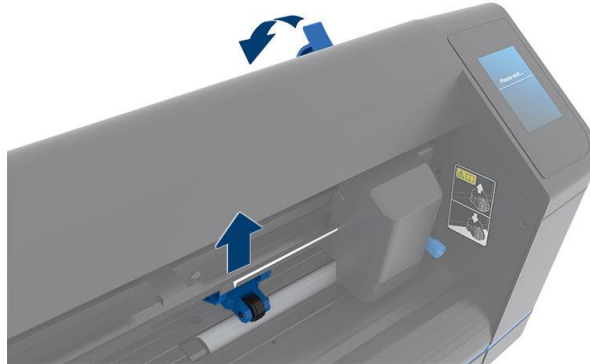


FIG 1-7  
PINCH ROLLER LEVER

2. Loosen the knobs on the two media core holders. The following illustration shows a loosened core holder ❶ and a tightened core holder ❷.

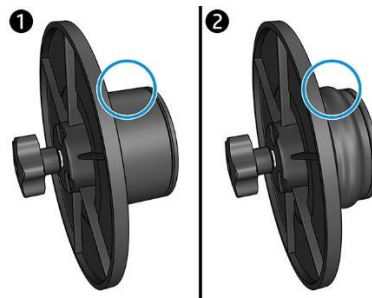


FIG 1-8  
CORE HOLDERS

3. Insert a loosened core holder into one end of the media roll and tighten the knob. Verify that the core holder is secure. Then do the same at the other side of the roll.
4. Place the media roll with core holders on both sides on the media support rollers, with the core holders inside the groove of the core holder guide. The core holder guides can be moved laterally on the roller.



FIG 1-9  
POSITION MEDIA CORE HOLDER CUTTER



**ATTENTION:** If the core holders are not used (not recommended – tracking is not guaranteed), then make sure that the roll is situated between the two core holder guides.



FIG 1-10  
FEEDING ROLL MEDIA WITHOUT USING THE CORE HOLDERS

5. Start feeding the media from the rear of the machine. Pass the media underneath the pinch rollers towards the front of the machine.
6. Position the left media edge on the left-most grit roller and check whether the right media edge is positioned over the long grit roller. Then position the left and right pinch rollers.

The pinch rollers should be positioned over the grit rollers about 3 to 15 mm (0.1" to 0.6") away from the media's outer edges ①. Then pull on the media while holding the core holder at the back, so the media is tight.

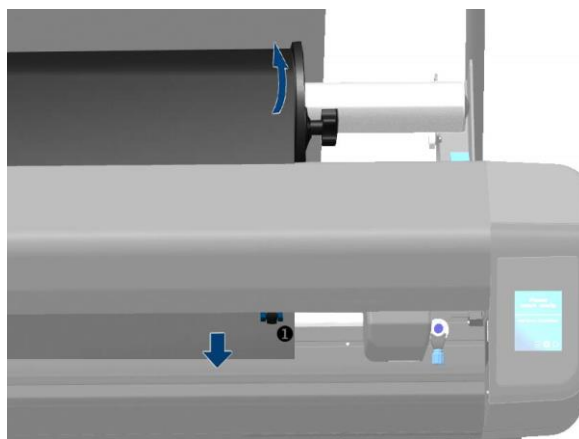
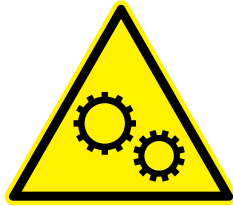


FIG 1-11  
MEDIA POSITION

If the above procedure does not work, e.g., because the media is too narrow to reach the long grit roller, try positioning the left media edge over the second left grit roller and the right media edge somewhere over the long grit roller. Continue moving the left pinch roller towards the long grit roller until both pinch rollers are in their designated position and directly over the edges of the vinyl.

In all cases, both edges of the media must cover a grit roller. If this is not the case, reposition the material roll to cover the grit roller.

7. Make sure the media follows a straight path from the material roll. To accomplish this, slide the media roll and core holder guides from the left to the right along the media support rollers.



**WARNING:** Keep fingers and other body parts away from the cutting area. There are hazardous moving parts.

8. Lower the pinch roller lever to press the media firmly against the grit rollers. After one second the tool carriage automatically moves from the right to the left to sense the usable media width.

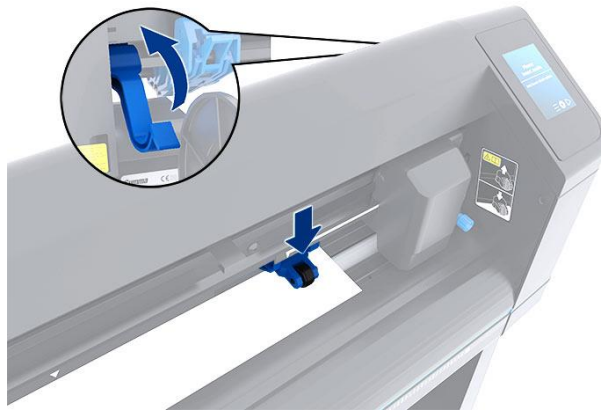


FIG 1-12  
PINCH ROLLER LEVER



**ATTENTION:** We do not recommend unrolling the media manually from the roll. The cutter will unroll the media automatically during the load sequence.

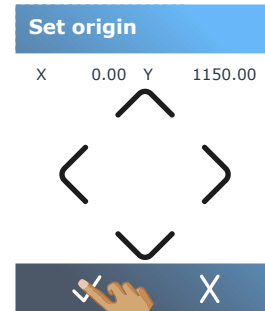
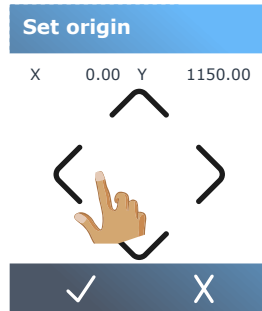
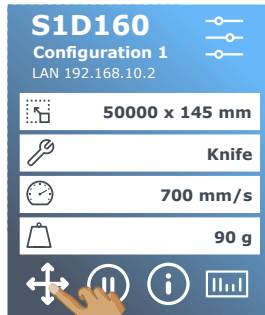
9. The cutter is now operational.



**NOTE:** The positioning and routing of sheet material are identical to that of roll media.

➤ **Changing origin.**

1. Power on the cutter and load the media.



2. Tap .

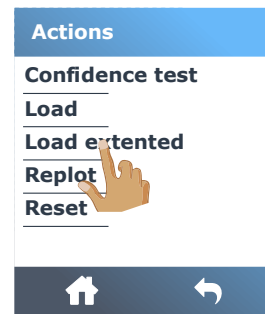
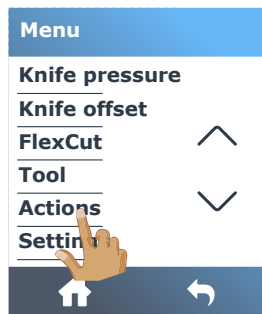
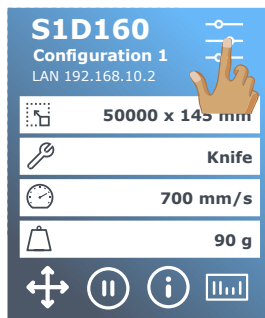
3. Use the arrows to change the origin. The value next to Y is the width that is left.

4. Tap  to confirm.

➤ **Load extended.**

This function makes it possible to define the limits of the Y-axis so that the cutter can cut outside the pinch rollers.

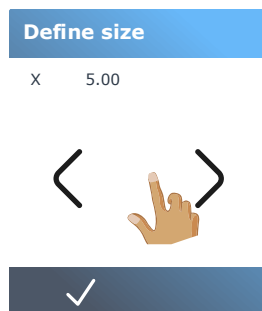
1. Power on the cutter and load the media.





2. Tap .

3. Tap *Actions*.

4. Tap *Load extended*.



5. Set the origin with the arrows and tap  to confirm.

6. Set the size with the arrows and tap  to confirm.



**ATTENTION:** Tracking is not guaranteed when using this mode.

## 1.6 Tool Installation



**WARNING:** The S One cutters use razor-sharp knives. To avoid serious injury, be careful when installing, removing or handling the knife!

### 1.6.1 Knife installation

A knife has been pre-installed in the cutter.

For safety reasons, the knife depth has been set to zero. Simply turn out the knife (see fig 1-13 yellow arrow clockwise) to start cutting. Below is the complete description of the knife removal and knife installation.

#### 1.6.1.1 Removing the drag knife

1. Loosen the head clamp screw and remove the knife holder from the clamp.

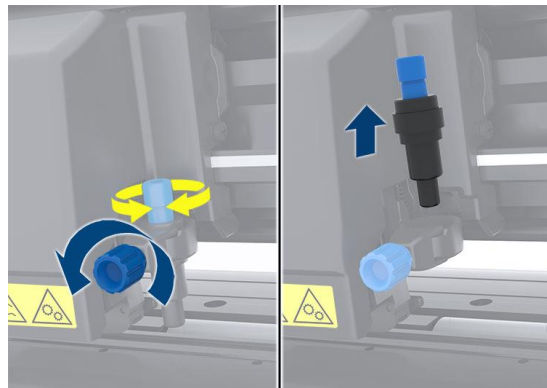


FIG 1-13

REMOVING THE DRAG KNIFE HOLDER FROM THE CLAMP

2. Turn the knurled adjustment knob **1** clockwise to push the knife **2** out of the holder **3**.



FIG 1-14

REMOVING THE KNIFE FROM THE STANDARD DRAG KNIFE HOLDER

3. Carefully pull the knife from the holder.

### 1.6.1.2 Installing the drag knife

1. Remove the aluminium piece from the plastic knife holder **3** by turning the knurled adjustment knob **1** counterclockwise until the aluminium piece comes out of the holder.
2. Insert the conical, non-cutting end of the knife into the opening in the narrow end of the holder. Gently push the knife in.
3. Turn the holder upside down and tap it lightly on a solid surface to ensure the knife is completely inserted.
4. Turn the knurled adjustment knob slowly clockwise until the tip of the blade extends as far as necessary to cut the desired material ( $t$ ), as shown in the illustration below.

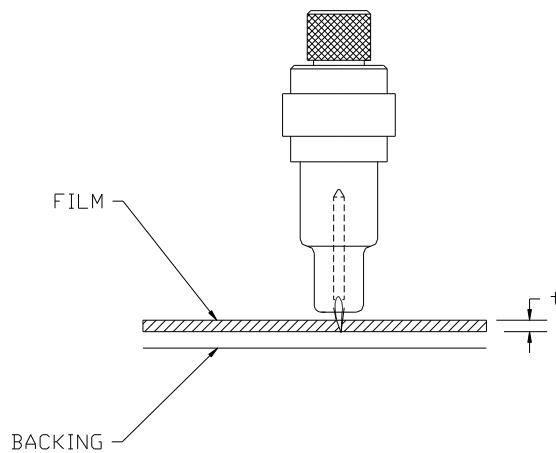


FIG 1-15  
KNIFE LENGTH ADJUSTMENT

5. Insert the knife holder into the head clamp and push it down. Then tighten the clamp screw.

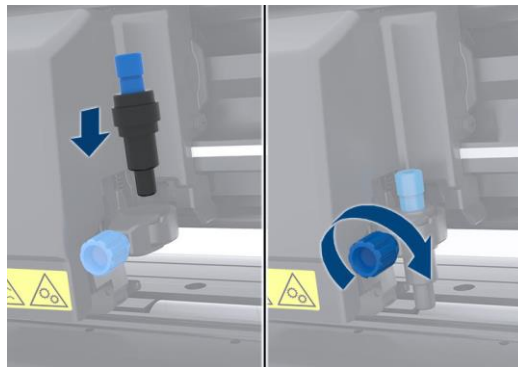


FIG 1-16  
CLAMP DRAG HEAD

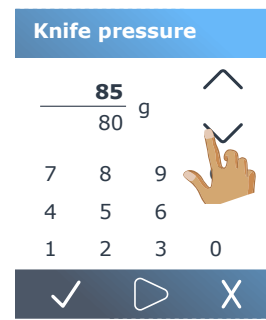
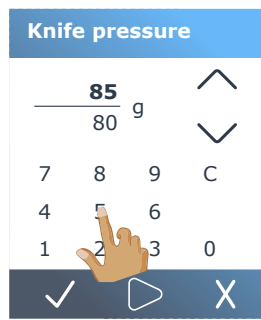
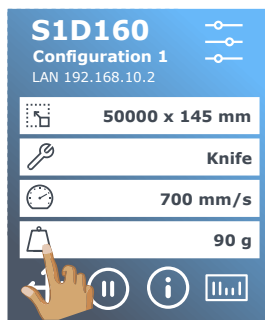
1.6.1.3 Setting knife depth and pressure:

(Media must be loaded in the cutter before the knife pressure can be tested).






**WARNING:** Each keystroke can initiate an internal test or movement of the head or media. Keep fingers and other body parts away from the cutting area. There are hazardous moving parts.


1. Power on the cutter and load the media.



2. Tap .

3. Use the arrows to change the value...
4. ...or enter the new value the value...

1. Tap  to perform the internal knife pressure test.
2. Tap  to confirm the chosen knife pressure.
3. Tap  to leave the pressure unchanged.

Once  is tapped, the current knife pressure value will be automatically set to the new value and the cutter will cut the knife pressure test pattern.

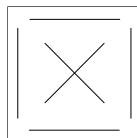


FIG 1-17  
KNIFE PRESSURE TEST PATTERN

Peel out the rectangle and inspect the media backing.

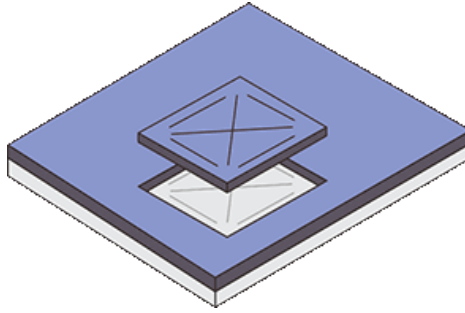


FIG 1-18  
PEELED KNIFE PRESSURE TEST PATTERN

The knife depth is set correctly when the test pattern is cut completely through the vinyl, the vinyl is removed, and the blade tip visibly scratched the front side of the media backing. The blade should never cut through the backing; just slightly scratch the silicon coating and the first few fibres of the backing material.

Because the knife pressure setting depends on the thickness and the type of the media to be cut, adjusting the knife pressure will require some practice. In general, the knife depth must be increased when using thicker types of vinyl and decreased when using thinner types of vinyl.



**ATTENTION:** After setting the cutting depth and/or the knife pressure, perform a thorough visual check of the knife blade, protruding from the knife holder and test the cutting results on a scrap of vinyl media.



**ATTENTION:** Do not operate the cutter if the knife blade cuts through the media backing, as this will seriously damage the cutter's rubber cutting strip and the knife.



**ATTENTION:** For most vinyl cutting operations, the knife blade tip will be barely visible at the bottom of the knife tool. If the knife blade tip is visible, then the cutting depth must be readjusted. To prevent damage to the cutter, check the depth of the knife blade tip and the quality of the cut each time you load a different type of vinyl into the cutter.



### 1.6.2 Pen installation

A kind of plotter pen can also be fitted into the S One cutters. After having replaced the knife with a pen, the cutter can be used as a plotter to draw draft plots of new or existing designs on paper.

1. Loosen the head clamp screw and remove the tool from the clamp.
2. Install the pen in the clamp and tighten the clamp screw.
3. The change of tool in the software can either be done on the touchscreen, with Summa Cutter Control (PC only), or with the cutting software.
4. Selecting pen operation disables the knife offset correction and changes the pressure to "pen pressure".



**ATTENTION:** The information on the touchscreen shows the currently selected tool by the cutter. Make sure the cutter's tool setting matches the actual tool in use.



FIG 1-19  
KNIFE IS CHOSEN TOOL



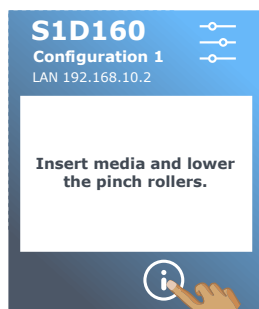
FIG 1-20  
PEN IS CHOSEN TOOL

## 1.7 Activation of extra features

The barcode function and Wi-Fi option are both options that need to be activated before they can be used. Activation is done through our website ([www.summa.com/en/support/product-registration/](http://www.summa.com/en/support/product-registration/)). The serial number of the cutter is needed for this activation. It can be found on the serial number label on the back of the cutter or in the information screen. We recommend getting the serial number directly from the information screen.

### Step one: obtaining the serial number

1. Power on the cutter.



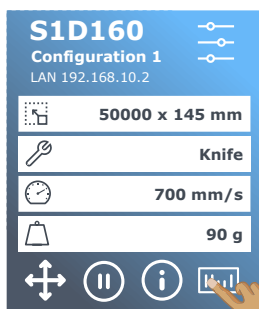
2. Tap



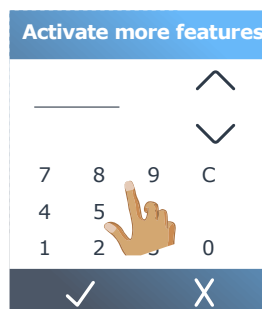
3. Write down the serial number.

### Step two: barcode activation

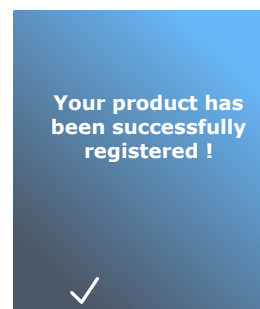
1. Go to our webpage and register your cutter. The web page will show the 6-digit activation code. You will receive an e-mail with the serial number and activation code. Save this e-mail for future reference.
2. Power on the cutter and load the media.



3. Tap



4. Enter the code and tap



5. Tap

## 2 BASIC OPERATION

### 2.1 Touchscreen

#### 2.1.1 Introduction

The touch screen is a unique interface system. It provides detailed information on the cutter status and offers more flexible and powerful configuration control. In addition to the status messages and/or menu options displayed on the touch screen, symbols can be tapped to change menu items or to change the value for a particular submenu/parameter.

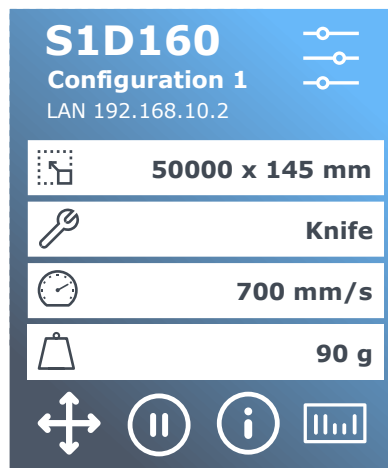


FIG 2-1  
TOUCHSCREEN

There is also a screen saving feature. After a certain amount of time, the screen goes blank and this logo appears on the screen.



FIG 2-2  
SCREEN SAVER

Touching the screen once disables the screen saver.



**WARNING:** Each keystroke can initiate an internal test or movement of the head or media. Keep fingers and other body parts away from the cutting area. There are hazardous moving parts.

---

## 2.1.2 Basic operation

### 2.1.2.1 Control buttons



gives access to the main menu. Tapping this symbol will cause the cutter to go offline and suspend all operations in progress. The main menu contains all parameter settings, submenus and access to tests and calibration routines.

The chosen tool will influence the displayed settings.



displays the current origin. Using the arrow symbols, you can change the origin.



'Online' and 'pause' are two important concepts when using the S One cutters. When online, the cutter can be controlled by the host computer. This means that the cutter will execute cutting or plotting instructions that are issued by the host computer's application software. When an action is triggered through the cutter's touchscreen, the cutter pauses and can no longer be operated by the host computer. However, if the computer was busy sending cutting data to the cutter it will be able to do so until the buffer of the cutter is full.



to start the barcode workflow. The barcode workflow is explained in section 3.3.4.



gives an overview of the firmware version and serial number.



appears when the cutter is cutting a job. Press this to stop the current job.

### 2.1.2.2 Current settings

	<b>50000 x 145 mm</b>
	<b>Knife</b>
	<b>700 mm/s</b>
	<b>90 g</b>

The default screen also shows a quick overview of the most important settings, such as material size, current tool, current tool speed and current tool pressure. By tapping the displayed value, you can quickly change it. These parameters can also be changed in the various menus (see section 4).

## 2.2 How to Set Tool Parameters

The S One cutters can work with a knife, pen or pouncing tool (optional). Once a tool has been changed, the tool parameters must be reset or checked. All the different tools have one parameter name in common: pressure. Each tool also has its specific parameters.

Tool parameters can be changed by either changing them in the current user or simply by changing the user (see section 2.4).



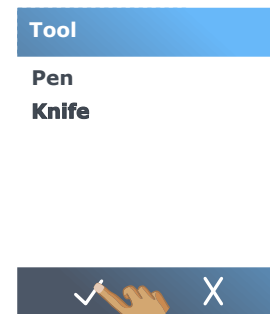
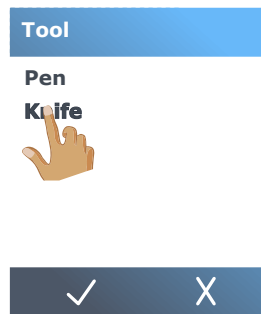
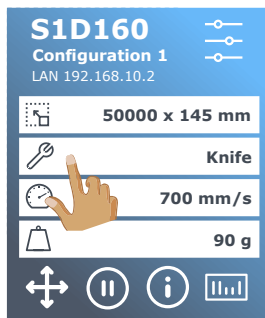
**ATTENTION:** The S One cutters will only perform according to specifications if a genuine Summa knife, pen or pouncing tool is installed. Do not replace the standard knife, pen or pouncing tool with products from other manufacturers.




**WARNING:** Each keystroke can initiate an internal test or movement of the head or media. Keep fingers and other body parts away from the cutting area. There are hazardous moving parts.

### 2.2.1 Setting the tool type

1. Power on the cutter and load the media.




2. Tap .

3. Tap the desired tool.

4. Tap  to confirm.

*If the tool type was changed, then the cutter will prompt the user to install the new tool.*







**NOTE:** If no media is loaded, then access the tool menu by tapping . The cutter will prompt you for a tool change if necessary after loading the material (see section 4).


## 2.2.2 Changing the tool pressure

1. Power on the cutter and load the media.



2. Tap .
3. Use the arrows to change the value...
4. ...or enter the new value.

1. Tap  to perform the internal knife pressure test.
2. Tap  to confirm the chosen knife pressure.
3. Tap  to leave the pressure unchanged.

Once  is tapped, the current knife pressure value will be automatically set to the new value and the cutter will cut the knife pressure test pattern.

Peel out the rectangle and inspect the media backing.

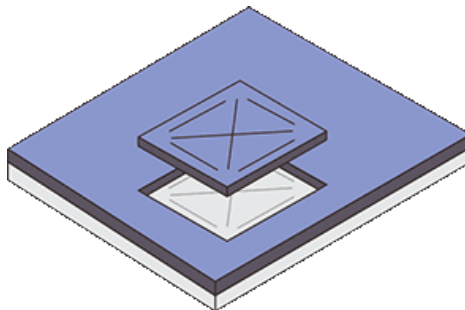


FIG 2-3  
PEELED KNIFE PRESSURE TEST PATTERN

The knife depth is set correctly when the test pattern is cut completely through the vinyl, the vinyl is removed, and the blade tip visibly scratched the front side of the media backing. The blade should never cut through the backing; just slightly scratch the silicon coating and the first few fibres of the backing material.

Because the knife pressure setting depends on the thickness and the type of the media to be cut, adjusting the knife pressure will require some practice. In general, the knife depth must be increased when using thicker types of vinyl and decreased when using thinner types of vinyl.

### 2.2.3 Changing the drag knife offset

A very important parameter for a drag knife is the offset. The offset is the distance between the knife centre and the knife tip.



**NOTE:** The knife offset should be set each time the knife is changed and should be checked if the knife shows signs of wear.



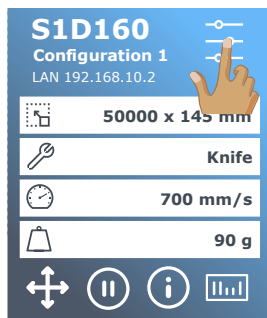
**NOTE:** A typical knife offset for Summa knives is between 0.41 and 0.45 for standard knives, between 0.9 and 0.97 for sandblast knives and between 0.49 and 0.52 for the 60-degrees knife.



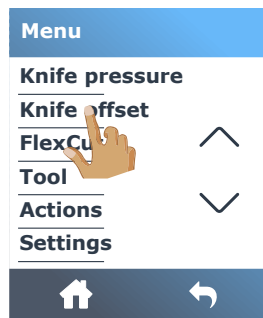
**NOTE:** Sandblast knives should be used when the material, that needs to be cut, is thicker than 0.25 mm (0.04”).

*Changing knife offset:*

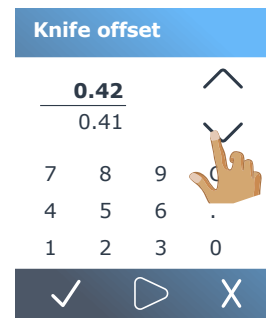
1. Power on the cutter and load the media.



2. Tap .



3. Tap *Knife offset*.



4. Use the arrows to change the value.

1. Tap to perform the internal knife offset and exit the menu.
2. Tap to confirm the chosen knife pressure.
3. Tap to leave the knife offset unchanged.

When the knife offset is set correctly, the test pattern looks like this:

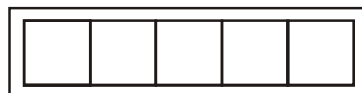
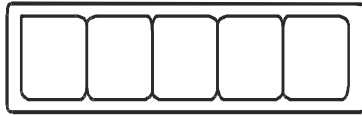
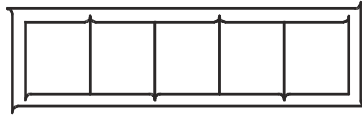


FIG 2-4  
CORRECT KNIFE OFFSET PATTERN

When the knife offset is too low, the test pattern looks like this:



When the knife offset is too high, the test pattern looks like this:



Adjust the knife offset until cut pattern is correct.



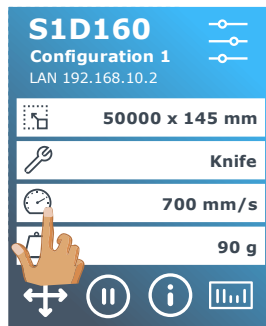
## 2.3 How to Set the Cutting Speed

The actual speed at which the tool moves is determined by 4 different parameters. Speed (and acceleration) while the tool is down; speed (and acceleration) while the tool is up. These 4 parameters have been bundled in one parameter to enable changing the speed fast and easy. This overall parameter is called “velocity” and represents the speed the cutter uses when the tool is down. If velocity is raised or lowered, the other parameters are also raised or lowered accordingly. The parameters can be changed individually, but only with the program Summa Cutter Control.

There is one fixed speed: the speed at which the cutter pulls the media from the roll. This speed is fixed at 200 mm/s (8 ips).

*Setting the cutting speed:*

1. Power on the cutter and load the media.



2. Tap 

3. Tap the desired velocity (use the arrows to scroll if necessary).

4. Tap  to confirm.



**NOTE:** The speed can also be set in the *Settings* menu, see section 4 for more information on using this menu.

## 2.4 How to Change the User (Quick Parameter Change)

The S One cutters include 4 user configurations, all of which consist of the same parameters. Each configuration can have unique parameter settings. This allows the cutter to be quickly and easily reconfigured for different types of jobs or media.



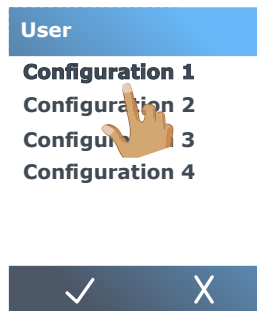
**NOTE:** Factory default values for the different users are all set the same.

*Changing the user configuration:*

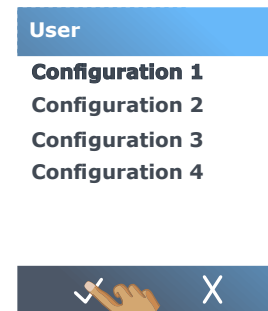
1. Power on the cutter and load the media.



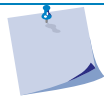
2. Tap the current configuration.



3. Tap the desired configuration.



4. Tap  to confirm.



**NOTE:** The name of the configuration can be changed with Summa Cutter Control.

## 2.5 How to Make Sure the Sign Has the Correct Size (Length Calibration)

The S One cutters are friction-feed machines. This means the cutting length depends on the thickness of the material.

The cutters have been calibrated in the factory for standard 2-mil cast or 3-mil calendared vinyl. Each user (the S One has a total of 4) can hold a different calibration factor.

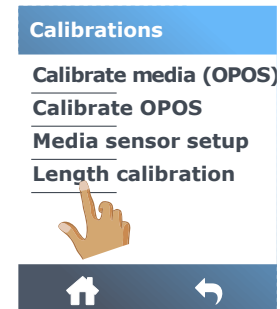
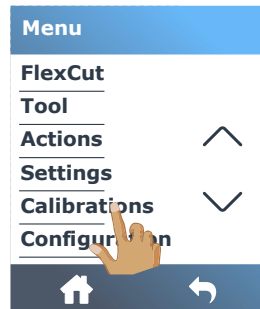
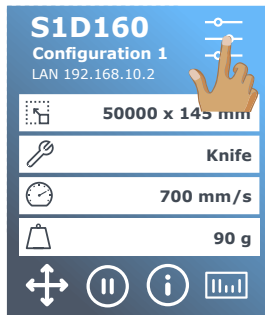
This is very helpful for multi-coloured signs. It ensures that the parts in different colours match up, even if different types of vinyl media are used.



**ATTENTION:** For standard use, it is not necessary to calibrate the machine. With standard vinyl, the accuracy is within 0.2 %. However, if high accuracy between different vinyl or colours is needed, then calibration is necessary.

*Calibrating the media (Length calibration):*

1. Power on the cutter and load the media.



2. Tap .

3. Scroll down with the arrow
4. Tap *Length calibration* and tap *Calibrations*.

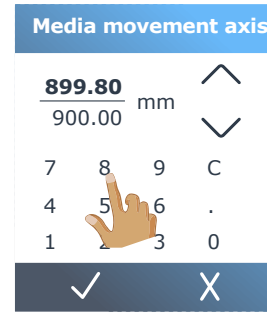
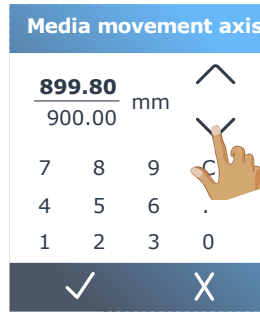
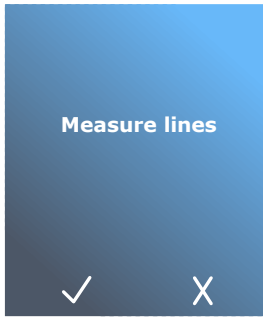
*The cutter will reload the media and perform the length calibration test. Take out the media and measure the length of the cut line with a ruler (measuring device). The length that has to be entered is the distance between triangle 1 and triangle 2 as shown in the figure below.*



FIG 2-5  
LENGTH CALIBRATION PATTERN



**NOTE:** The cutter will only be as accurate as the accuracy of the calibration itself. If the ruler (measuring device) is inaccurate, then re-calibrating may worsen the cutter's accuracy. The accuracy of the calibration will be reflected directly in the cuts. Set the cutter to *Metric* (*Configuration > Menu units*) to perform calibration.



5. Tap  to enter the value or  to leave without changing.
6. Use the arrows to change the value...
7. ...or enter the value.
8. Tap  to confirm the value of the measured length.



**NOTE:** Once this user is calibrated, consider changing the username. This makes it easy for future reference.

## 2.6 Cutting through

### 2.6.1 Procedure

The 'cutting through' functionality is focussed on cutting simple shapes (e.g. rectangles). It is mostly used in combination with contour cutting. An interrupted cutting line (small 'bridges') makes sure the material remains together. When the job is finished, the cut pieces can be torn out.

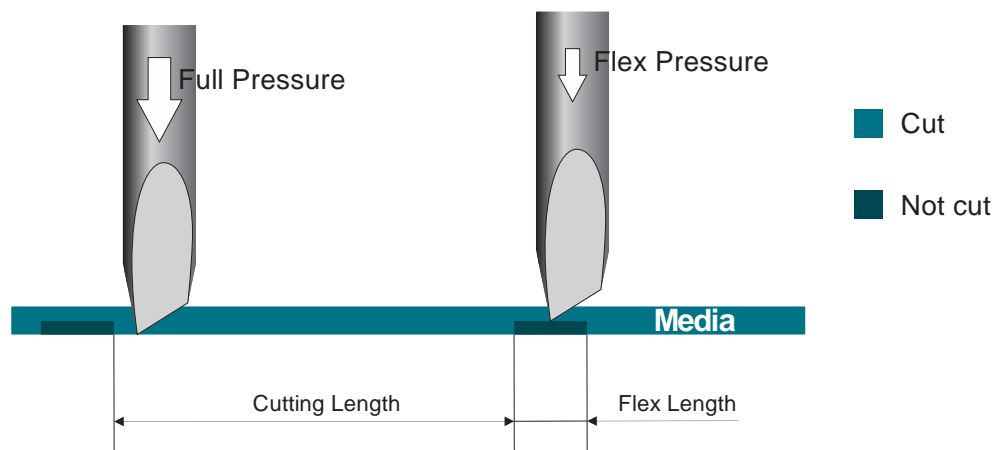


FIG 2-6  
FLEXCUT PRINCIPLE

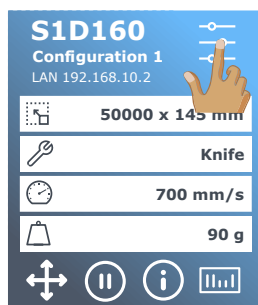
Some cutting software can recognize the difference between a contour line and a cut-through line. The software will send the data of the contour lines to the cutter first, activate FlexCut, panelling mode and vector sorting and then send the cutting through data to the cutter.

*Setting the parameters for cutting through the media:*

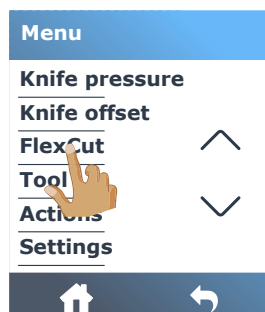


**NOTE:** The following procedure describes how to set the parameters for FlexCut. The values in the screenshots below are merely indicative. Refer to section 2.6.2.2 first for a description on how to get the exact parameters for the media that you will be using.

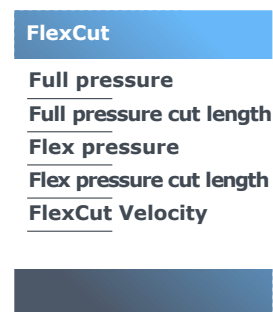
1. Power on the cutter and load the media.



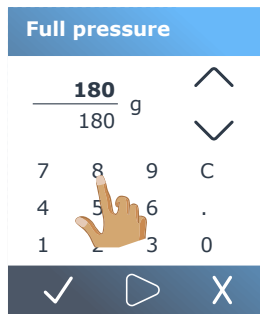
2. Tap .




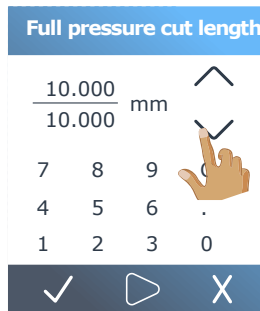
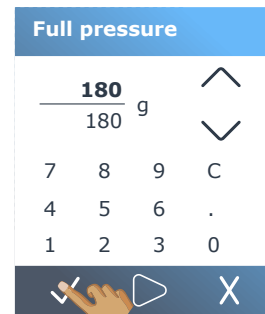
3. Tap *FlexCut*.




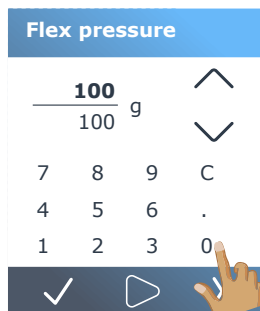
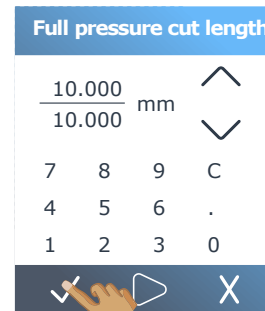
4. Tap the parameter to set.




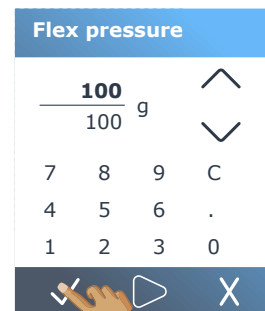
Use the arrows to change the value or enter the value. Tap  to confirm.




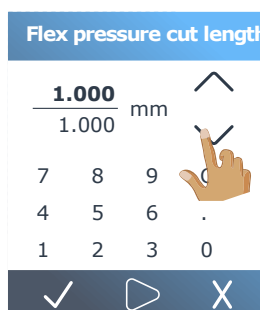
Use the arrows to change the value or enter the value. Tap  to confirm.




Use the arrows to change the value or enter the value. Tap  to confirm.



Tap the desired velocity. Use the arrows to scroll if necessary. Tap  to confirm.



Use the arrows to change the value or enter the value. Tap  to apply the values and leave the menu.



5. Check the bridges. If they are too large, perform a test with a lower value. If they are too small (or non-existent) then raise the *Flex pressure cut length* value.



**NOTE:** FlexCut parameters are always metric, regardless of the value of the *Menu Units* parameter.



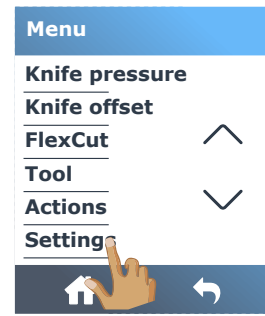
**ATTENTION:** When cutting through, it is recommended that parallel lines are at least 1 cm (0.4") away from each other. Otherwise, while cutting the second line, the first line may come loose and cause trouble.



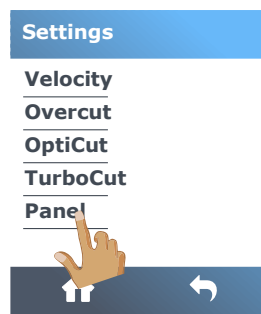
7. Tap to confirm.



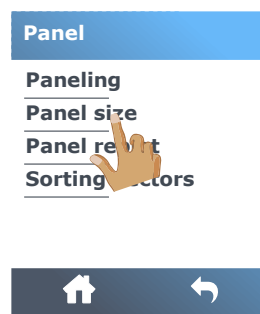
8. Tap to return to the main menu.



9. Tap *Settings*.



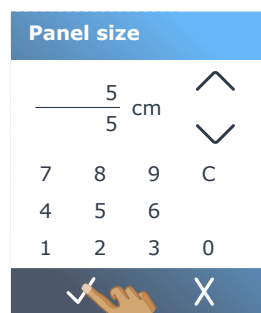
10. Tap *Panel*.



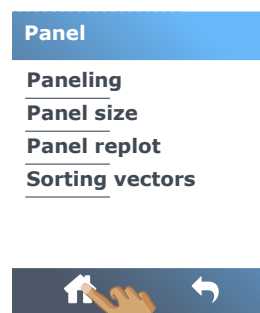
11. Tap *Panel size*.



12. Use the arrows to change the value or enter the value.



13. Tap to confirm.



14. Tap to return to the home screen.



**NOTE:** Recommended setting for *Panel size*: between 3 and 10 cm (1.18" and 3.94").

## 2.6.2 Practical tips

### 2.6.2.1 Physical knife depth

Although very similar, there are two types of knife depth settings, one for normal cutting and one when FlexCut is used. What they have in common is that the knife is never turned out a lot.

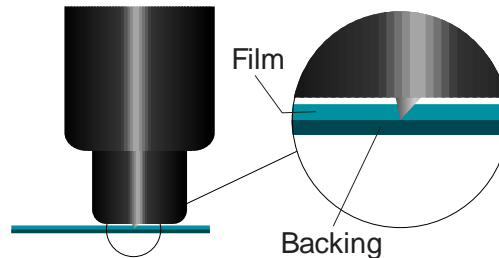


FIG 2-7  
KNIFE DEPTH SETTING NORMAL CUTTING

For normal cutting, the knife is turned out just a little bit more than the actual cutting depth. Turning out the knife much further would result in unstable knife pressure and bad cut quality.

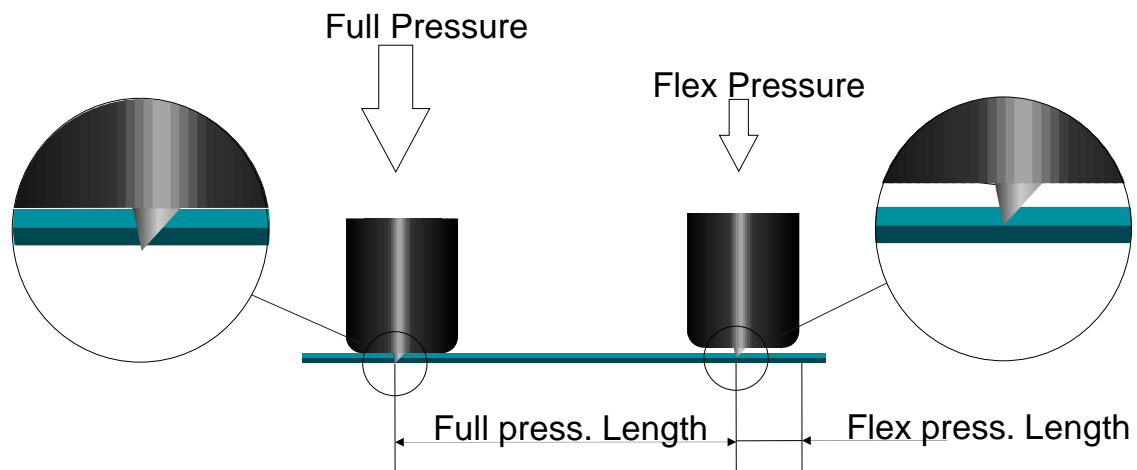


FIG 2-8  
KNIFE DEPTH SETTING CUTTING THROUGH

When performing FlexCut, the knife is turned out just enough to cut through the vinyl and the backing. The decision to let the knife holder rest on the media at full pressure depends on the actual media that you are using. If the media is prone to scratching, then make sure the bottom of the knife holder does not touch the media when using full pressure. If not, we recommend letting the bottom of the knife holder touch the media at full pressure.



### 2.6.2.2 Values of the FlexCut parameters

Determining the values of the FlexCut parameters can be divided into two main steps. The first step is to determine the 'fixed' pressure values. The second step is determining empirically the length parameters.

#### ➤ **Step 1**

First, go to the knife pressure test as described in section 1.6.1.3. Determine the pressure that is needed to cut completely through both the vinyl and the backing. Make sure the pressure is not set too high and the knife is not turned out too far. After the required pressure is determined, raise the knife a little bit to check if it still cuts completely through. If this is the case, raise it a little more. If it does not cut completely through anymore, then lower the knife again. Now lower the knife pressure a little bit to check if it still cuts completely through. If this is the case, lower the pressure a little. If it does not cut completely through, set the pressure at the previous value.

This is how the correct pressure to cut completely through the media is determined, as well as the correct amount the knife is turned out.



**NOTE:** Write down the pressure that was needed to cut completely through and do not change the physical knife depth anymore (unless the knife has worn down a little bit).

Now set the knife pressure correctly to cut only through the vinyl. Write down this value.

#### ➤ **Step 2**

Set the FlexCut parameters as explained in section 2.6.1 with the following values:

- *Full pressure:* the value that was needed to cut completely through the media (determined in step 1).
- *Flex pressure:* the value needed to cut through the vinyl only.



**NOTE:** We do not recommend using cutting speeds larger than 400 mm/s (16 ips) with cutting pressures above 170 gr. So, if the full pressure is larger, lower the FlexCut velocity.

- *Full pressure cut length:* 10 mm.
- *Flex pressure cut length:* 0.8 mm.

Perform a test. Check the bridges. If they are too large, perform a test with a lower *Flex pressure cut length* value. If the bridges are too small (or non-existent) then raise this value.

The FlexCut parameters are now set. If these settings need to be adjusted, try only changing *Flex pressure cut length*. There is no need to adjust pressure settings unless the knife wears down. In that case, start again with step 1.



**NOTE:** It is not always easy to find the correct balance between cutting deep enough and making sure the pieces can be taken out easily and not cutting too deep, making sure the material keeps its strength while cutting. Sometimes this balance doesn't exist, meaning that this material can't be cut through with satisfying result.

---

### 2.6.2.3 Material without a backing

Although FlexCut was designed for usage with standard vinyl (typical two-layered material), it is also used with single-layered material. In this case, the settings of the parameters are more difficult and require more trial-and-error tests than calibrating FlexCut for normal vinyl.

The only parameter that can be determined easily is *Full pressure*.

The *Flex pressure* is very material dependent. Plastics need a relatively high *Flex pressure*. Fibrous material then needs relative lower *Flex pressures*. The *Flex pressure cut length* of plastic materials is relatively short, whereas fibrous materials need longer 'bridges' to keep the material together to move it back and forth.

However, the principle is the same. The parameters need to be set in a way that the bridges are strong enough to be able to move the material back and forth, but small enough so they are practically invisible once the object is removed from the material.

A secondary help might be the adjustment of the panel size. When working with very weak material, lower the panel size. Overall, it is difficult to set the parameters for single-layered material correctly.



## 3 OPOS

### 3.1 Introduction

The highly accurate Optical Positioning system (OPOS) of the S One allows for contour cutting.

The OPOS sensor, which is mounted on the right side of the tool carriage, detects squares ("marks") printed around the image, allowing OPOS to determine the exact position of the printed image.

The sensor automatically lowers during the registration of the markings and rises again afterwards. The improved sensor can read almost any kind of media-mark combination.

### 3.2 Basic OPOS operation

In general, contour cutting includes the following steps:

1. Create the graphic and contour cut line(s).
2. Print the graphic using a RIP that supports Print & Cut (lamine afterwards if necessary).
3. Load the graphic into the cutter.
4. Load the media and register the marks.
5. Cut the graphic.

Many versions of cutting software have the built-in capability to make contour cutting user-friendly and automatic. Please refer to the user's manual that came with your software or contact your software dealer for specifics.



**NOTE:** Some RIP software requires that the contour lines are defined in a special colour (spot colour). Please refer to the user's manual that came with your software or contact your software dealer for specifics.

---



**NOTE:** Do not place contour lines along the edges of graphics, otherwise the slightest movement in the media may result in an unsatisfactory cut. Instead, practice one of the following techniques.

---

1. Place contour lines just inside the graphics.
2. Place contour lines outside the graphics.
3. Create thick borders around graphics and place contour lines inside these borders.

### 3.2.1 Printing the graphic

Print the graphic and its marks. When printing on a roll, leave a margin of 2 cm (0.8 in) at the sides and at the front. For shorter jobs the edge margins may be smaller, but they must be at least 1 cm (0.4 in).

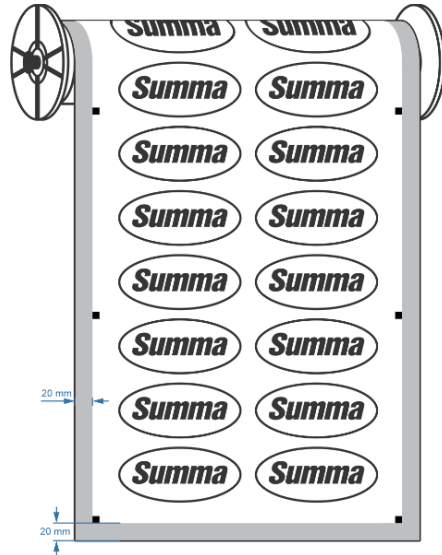


FIG 3-1

MARGINS WHEN PRINTING ON A ROLL

Leave a minimum of 40 mm at the end of a roll. When printing on a sheet, leave a margin of at least 40 mm between the last OPOS mark and the media edge (this is also the minimum amount of material that should be left at the end of a roll).

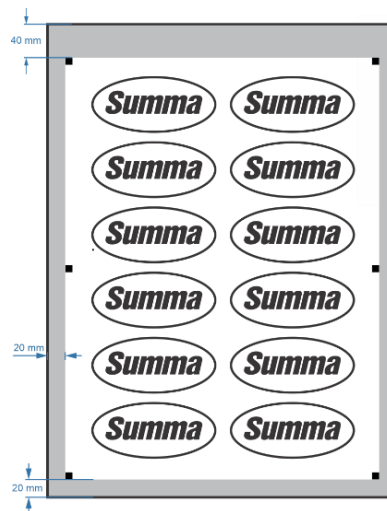


FIG 3-2

MARGINS WHEN PRINTING ON A SHEET

### 3.2.2 Different OPOS alignment methods

Although it is an internal parameter, it must be set in the Print and Cut software. The following options are usually available:

OPOS X: A row of marks is printed on the left and right sides of the graphic, which are read by the OPOS sensor and then used to compensate for print distortion.

OPOS XY: An additional line is printed at the bottom of the job (line ① in the figure below), which is read by the sensor and then used to compensate for print distortion along the width of the machine.

OPOS XY2: Similar to the XY line at the bottom, a line (line ② in the figure below) is printed at the top of the job to allow more accurate cutting of long jobs.

OPOS XYXtra: Similar to the lower XY line, a line is printed between each left-right mark.

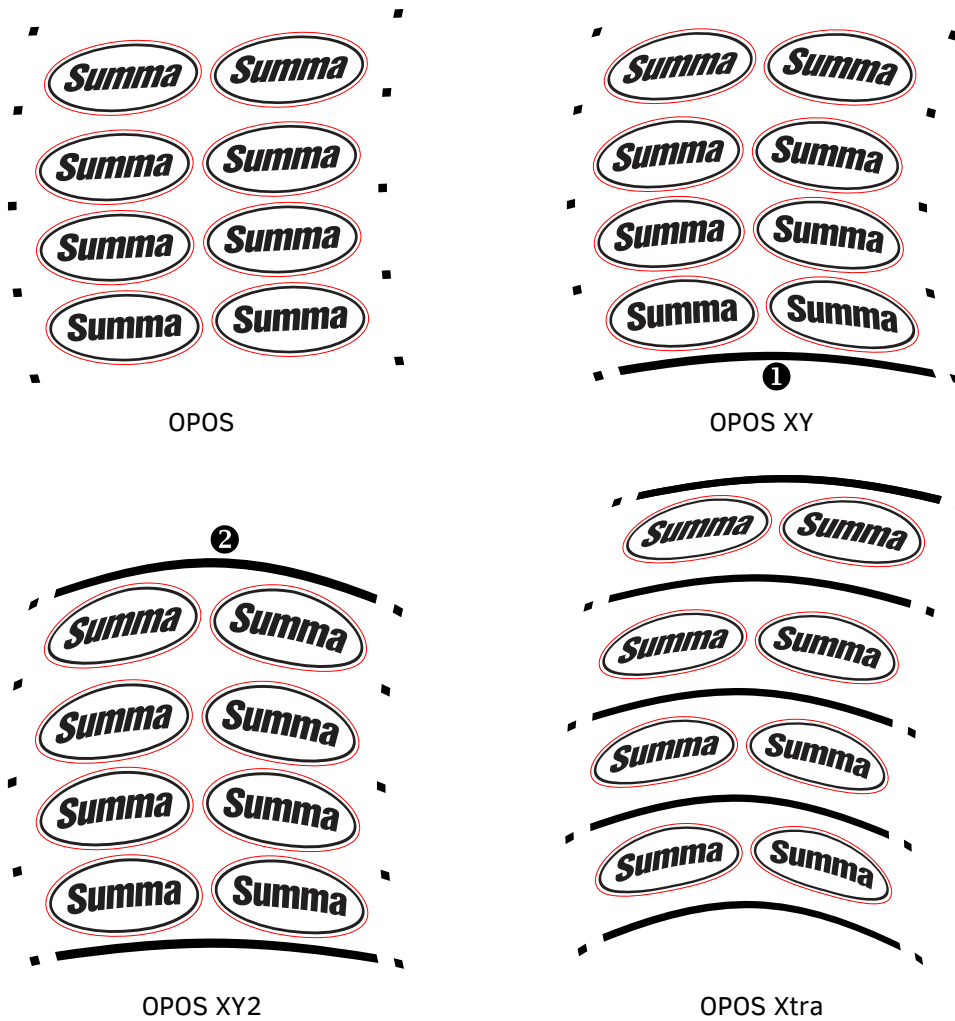
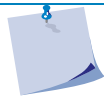


FIG 3-3  
OPOS ALIGNMENT METHODS

### 3.2.3 Processing long jobs

Normally, the OPOS sensor registers all the marks before it starts cutting. With long cutting jobs, however, this can lead to extensive back-and-forth shifting of the media, which can result in poor tracking. To prevent this, an additional parameter can be set in the cutter. This option divides the job into segments (“panels”) to prevent the media from being moved around unnecessarily. When OPOS panelling is activated, all cutting data is cut in segments. The size of the segments is the distance between the OPOS marks in X direction.

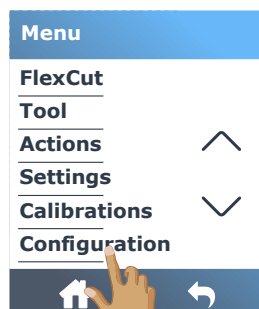
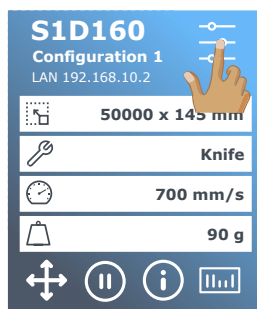
The *OPOS panelling* parameter can be set to *Off*, *On (2 marks)* or *On (4 marks)*. If set to *On (2 marks)*, the cutter will only load up to 2 marks in X direction during an OPOS loading action and read the marks (4 total for the first segment). The next segments will then be cut after reading the marks at the end of that segment (i.e. 2 for each subsequent segment). If set to *On (4 marks)*, the last marks of the previous segment are read again, which ensures a better connection between the segments.



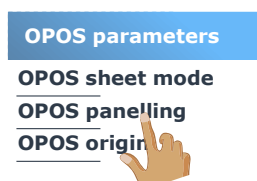
**NOTE:** Do not use software panelling when *OPOS panelling* is on.

Activating *OPOS panelling*:

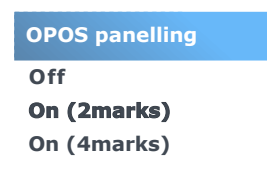
1. Power on the cutter and load the media.



2. Tap .



3. Scroll down with the arrow
4. Tap *OPOS parameters* and tap *Configuration*.



5. Tap *OPOS panelling*.



6. Tap the desired option.



7. Tap  to confirm.





### 3.3 Automating OPOS tasks

For standard OPOS jobs, you only need to place the tool above the first mark to start the job. OPOS allows you to automate certain jobs, thus reducing user intervention and production time. There are different types of automation.

#### **Automatic start of the OPOS job**

This is controlled by the *OPOS origin* parameter. Thanks to the combination of this parameter setting and/or a special origin setting during media loading, you do not need to place the tool above the first mark to start an OPOS job.

#### **Multiple copies of the same job**

When cutting multiple graphics, you only need to place the OPOS sensor above the origin mark of the first graphic. Cutting subsequent graphics requires no further action from you.

There are two multi-task situations in which OPOS can be used:

1. When cutting multiple (copies of a) graphic(s) on the same media roll.
2. When cutting the same graphic on multiple sheets.

Most automated jobs are organized from the cutting software. However, when the same graphic contour has to be cut out, the automated job may also require some manual manipulation.

#### **Unattended contour cutting (roll to roll)**

A special barcode can be printed with the job, which is then used to access the correct cutting data, allowing the cutter to cut one job after another without user intervention.

### 3.3.1 OPOS origin

The *OPOS origin* parameter automates the start of the OPOS procedure. This parameter has 4 settings (*Mark*, *Current Position*, *XY Line* or *Media centre*). The use of this parameter depends on the selected OPOS mode. If OPOS is in sheet mode, this parameter has no effect.

#### 3.3.1.1 In combination with OPOS X mode

##### *The OPOS Origin is set to 'Mark'.*

This is the default setting. Upon receiving an OPOS job from the computer, the cutter prompts you to place the tool above the first mark and confirm. The cutter starts searching for the OPOS mark around that position.

##### *The OPOS Origin is set to 'Current position'.*

Upon receiving an OPOS job from the computer, the cutter immediately starts searching for the mark, without waiting for you to move the tool. You must therefore place the tool above the first mark while loading the media.



**NOTE:** If the OPOS origin is set to either *XY Line* or *Media centre*, then the cutter will respond as if the parameter was set to *Mark*.

#### 3.3.1.2 In combination with OPOS XY, OPOS XY2 or OPOS Xtra mode

##### *The OPOS Origin is set to 'Mark'*

This is the default setting. Upon receiving an OPOS job from the computer, the cutter prompts you to place the tool above the first mark and confirm. The cutter starts searching for the OPOS mark around that position.

##### *The OPOS origin is set to 'XY line'*

Upon receiving an OPOS job from the computer, the cutter prompts you to place the tool under the OPOS XY line and confirm. The cutter starts searching for the OPOS XY line by slowly moving the media forward. Once it has found the OPOS XY line, it follows this line to the right until it finds the first mark and then starts searching for the actual mark.

##### *The OPOS origin is set to 'Current Position'*

Upon receiving an OPOS job from the computer, the cutter immediately starts searching for the OPOS XY line by slowly moving the media forward. Once it has found the OPOS XY line, it follows this line to the right until it finds the first mark and then starts searching for the actual first mark. You must therefore place the tool before the XY line, immediately after the media has been loaded.

This setting was created for jobs that are aligned at the left side and differ a lot in size on the roll. The origin/tool can then be set to the left of the media, before the OPOS XY line to be able to find the origin mark, even if it is situated far from the right side of the media.

***The OPOS origin is set to 'Media centre'***

Upon receiving an OPOS job from the computer, the cutter moves the OPOS sensor to the centre of the media. The cutter starts searching for the OPOS XY line by slowly moving the media forward. Once it has found the XY line, it follows the XY line to the right until it finds the first mark and then starts searching for the actual mark.

This setting has been created for jobs on a roll where the width of each job is at least half the width of the media (this is usually the case; otherwise there is a lot of wasted media). This method is slightly slower than the previous method.

**3.3.1.3 In combination with OPOS Barcode*****The OPOS Origin is set to 'Mark'.***

This is the default setting. Upon receiving a barcode job (from the computer or from the touchscreen), the cutter prompts you to place the tool under the barcode line. The cutter scans the line at two points to determine the angle of the printed line. The sensor moves to the right pinch roller and starts scanning the barcode.

***The OPOS origin is set to 'XY line'***

Upon receiving a barcode job (from the computer or from the touchscreen), the cutter prompts you to place the tool under the barcode line. The cutter scans the line at two points to determine the angle of the printed line. The sensor then follows the barcode line to the beginning and starts scanning the barcode.

***The OPOS origin is set to 'Current Position'***

Upon receiving a barcode job (from the computer or from the touchscreen), the cutter immediately starts searching for the OPOS barcode line by slowly moving the media forward. Once the cutter has found the line, it scans the line at two points to determine the angle of the printed line. The sensor then follows the barcode line to the beginning and starts scanning the barcode.

***The OPOS origin is set to 'Media centre'***

Upon receiving a barcode job (from the computer or from the touchscreen), the cutter moves the OPOS sensor to the centre of the media. The cutter starts searching for the OPOS barcode line by slowly moving the media forward. Once the cutter has found the line, it scans the line at two points to determine the angle of the printed line. The sensor then follows the barcode line to the beginning and starts scanning the barcode.



**NOTE:** The OPOS barcode workflow is explained in section 3.3.4.

---

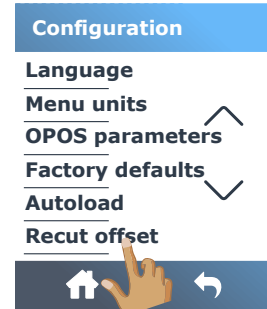
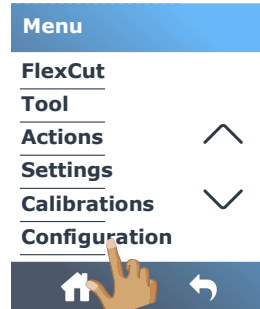
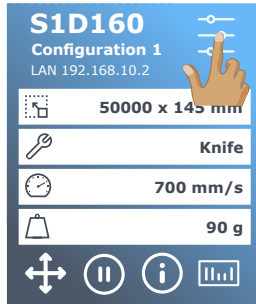
### 3.3.2 Cutting multiple copies of a graphic on the same roll

If the same graphic design has been printed on a roll with equal distance between these graphics, this feature can be used.



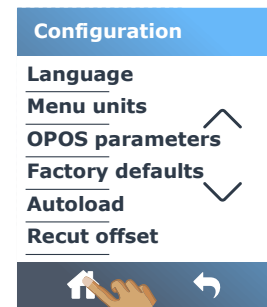
**NOTE:** The distance between the multiple copies should be at least 30 mm.



1. Power on the cutter and load the media.



2. Tap .

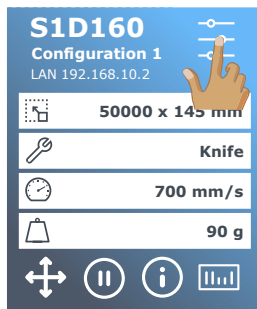
3. Scroll down with the arrow and tap *Configuration*.
4. Scroll down with the arrow and tap *Recut offset*.



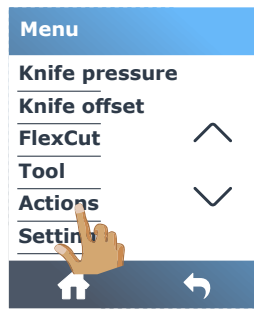
5. Use the arrows to change the value or enter the value.
6. Tap  to confirm.
7. Tap  to get online again.

8. Make the first copy as you would perform a normal OPOS job.

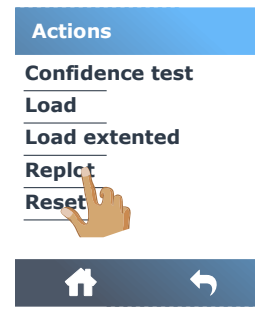
*The cutter will stop after the first contour has been cut and will come online again.*



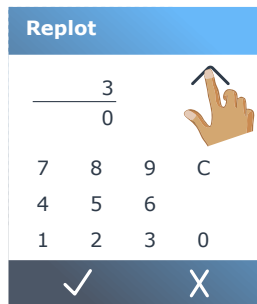
9. Tap .



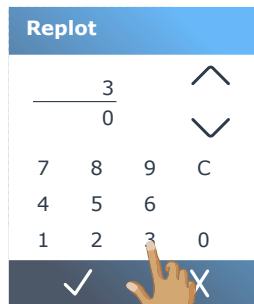
10. Tap *Actions*.



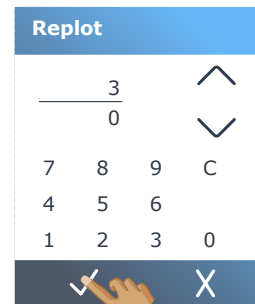
11. Tap *Replot*.



12. Use the arrows to change the value...



13. ...or enter the value.



14. Tap  to confirm.

*OPOS will register the marks for the second contour and then cut that contour. This process of registering and cutting will repeat itself automatically until all remaining contours have been cut.*



**NOTE:** If the cut-off command is used, the recut distance should be at least 30 mm larger than the cut-off distance.

### 3.3.3 Cutting the same graphic on multiple media sheets

If the same graphic design needs to be printed on multiple sheets, this feature can be used.



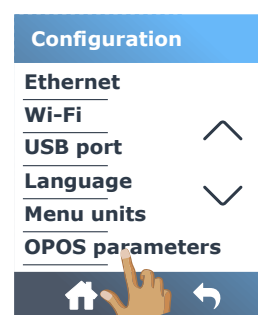
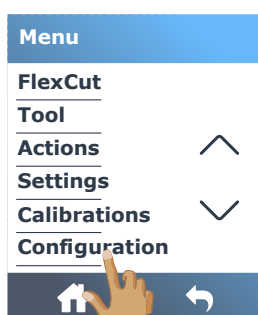
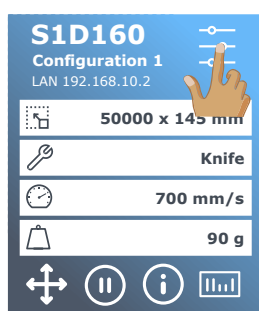
**NOTE:** The sheets should be of approximately the same size and the graphics on them should be oriented and positioned in the same way.



**NOTE:** OPOS sheet mode ignores the parameter *OPOS origin*, so the tool will always have to be set manually for the first job.

First, load the media and check whether the parameters of the OPOS marks are set correctly.

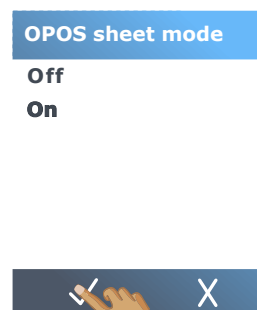
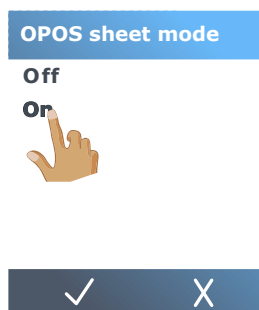
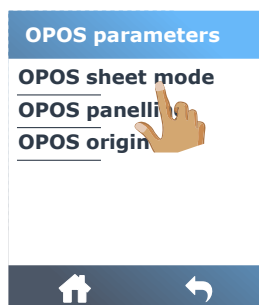
*Cutting the same graphic on multiple media sheets:*



1. Tap .

2. Scroll down with the arrow and tap *Configuration*.

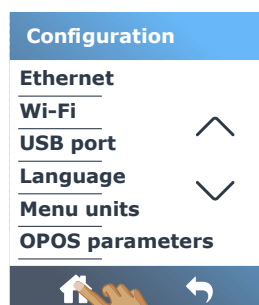
3. Tap *OPOS parameters*.



4. Tap *OPOS sheet mode*.

5. Tap *On*.

6. Tap  to confirm.



7. Tap  to get online again.

8. Perform the cutting job on the first sheet.
9. The cutter will stop after the first contour has been cut and will come online again.
10. Raise the pinch rollers and remove the sheet manually.
11. Insert the next sheet into the cutter. Lower the pinch rollers.



**NOTE:** The second and subsequent sheets must be loaded into the cutter with the same position and orientation as the first sheet. When in OPOS sheet mode, the cutter stores the distance between the edges of the sheet and the first OPOS mark.



**NOTE:** Use easy reference points for quick positioning of the sheet. In the figure below, an edge of the base plate and the side of the pinch roller assembly are used to align the sheets.



FIG 3-4  
POSITIONING THE MEDIA FOR MULTIPLE SHEETS

### 3.3.4 OPOS Barcode

#### 3.3.4.1 Introduction

The S One cutters can also read a barcode. Certain RIPs can print a barcode together with the OPOS marks. This barcode can then be used to identify the job and automatically retrieve the required cutting data from the computer.

A program must run on the computer that will act as a barcode server and monitor the connection to the cutter. Once a barcode has been sent by the cutter, the program will search for the corresponding file with the correct cutting data on a server (to which the RIP has written the cutting file) and send this file to the cutter. Once the file is sent, the barcode server waits again for a new barcode. This way, a complete roll can be cut without user intervention.

Depending on the program (barcode server), the procedure will either have to be started from the cutter's touchscreen or from within the program (Summa's barcode server contains both options). Please refer to the user's manual of the respective program to start the barcode procedure from within the program. To start the procedure from the touchscreen, follow the procedure described in chapter 3.3.4.2.



FIG 3-5  
OPOS BARCODE JOB LOADED

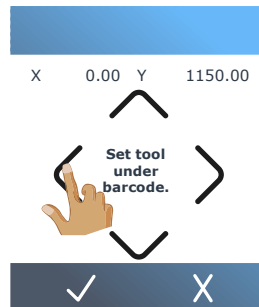


### 3.3.4.2 Initiating the barcode procedure

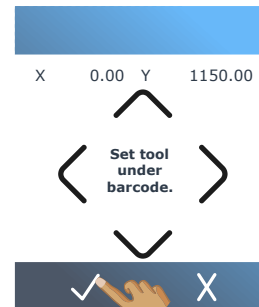
1. Power on the cutter and load the media.



2. Tap .



3. Use the arrows to put the tool under the barcode.



4. Tap  to confirm.

The cutting process starts.

- The cutter reads the barcode and sends this data to the computer.
- The cutting software automatically sends the correct cutting data to the cutter.
- The cutter starts registering the OPOS marks and cut the job.
- The OPOS sensor now searches whether there is another job printed after the one just completed and continues cutting contours.

This is repeated until all contour cutting jobs on the loaded roll have been cut.



**NOTE:** If the procedure is to be started from the computer (barcode server program), click on the start icon in the program (please refer to the manual of this program for more information). Then go to step 3 in the above procedure.

## 3.4 Calibrating OPOS

To ensure that OPOS works accurately, two calibrations must be carried out: the OPOS calibration and the media calibration. The OPOS calibration is the calibration of the distance between the knife tip and the sensor. The media calibration “teaches” the cutter the reflection levels of the mark colour and the media colour.



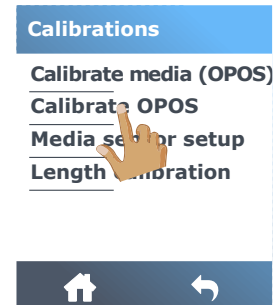
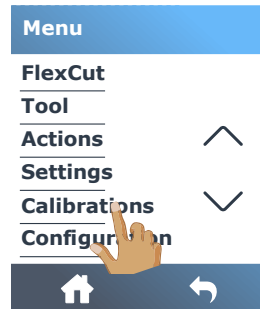
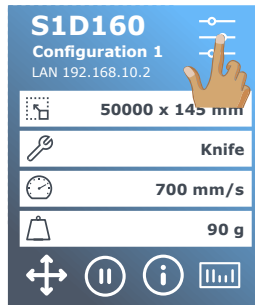
**NOTE:** Although the OPOS sensor is factory calibrated, Summa recommends performing a test to determine how well the factory-set parameters work with the materials you are using. If the accuracy is not satisfactory, then perform the OPOS calibration.

### 3.4.1 OPOS calibration

1. Switch on the cutter and load black vinyl with a white backing.



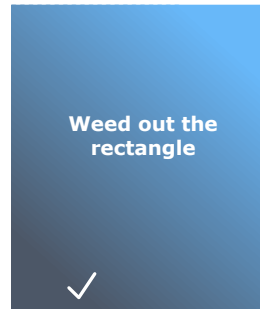
**NOTE:** OPOS calibration MUST be done with black vinyl with a white backing.




2. Tap .


*The cutter will cut out a square, measuring approximately 9.5x9.5 mm and move the square forward. "Weed out Rectangle" will appear on the display.*

3. Scroll down with the arrow and tap *Calibrations*.
4. Tap *Calibrate OPOS*.



*OPOS will read the edges of the square and calibrate itself accordingly.*

5. Carefully weed the square, making sure the edges stay intact. Tap .

6. Tap  to get online again.



**NOTE:** To keep the OPOS sensor as accurate as possible, you should perform this calibration each time the knife is changed.

### 3.4.2 Media calibration

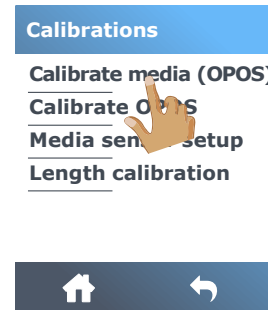
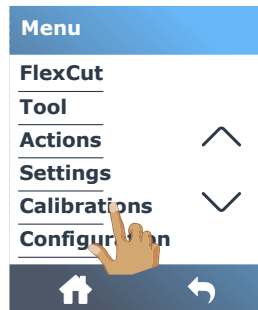
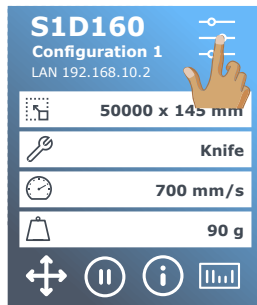
Media calibration ensures that the sensor can recognize the marks. OPOS is factory calibrated to work with a wide range of materials. However, certain materials, such as those with a high gloss, may not work with the default settings. Before working with such materials, perform a media calibration test. This test will alter OPOS's sensitivity so that it will read the marks with greater reliability. Print a square of at least 4x4 cm on the media used. Use the same ink as for printing the registration marks.




**NOTE:** If the media calibration is completed and the results have not improved, reset the media calibration value to the default value.

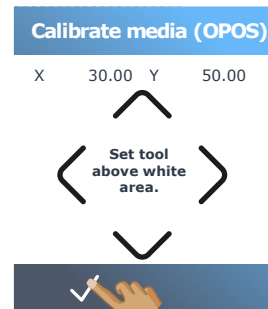
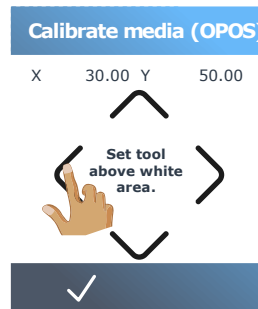
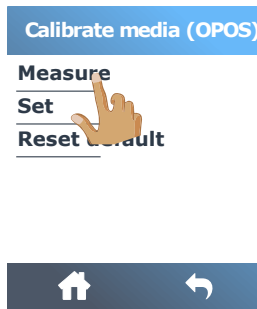
Perform the media calibration:

1. Switch the cutter on and load the vinyl with the printed square.




2. Tap .

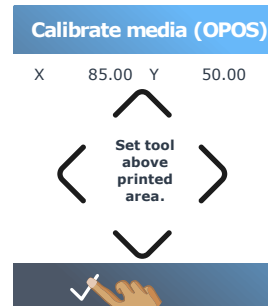
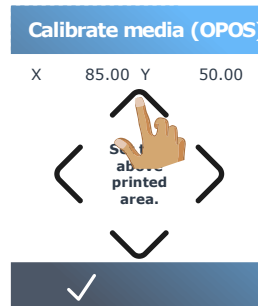
3. Scroll down with the arrow  and tap *Calibrate media (OPOS)*.
4. Tap *Calibrate media (OPOS)*.




5. Tap *Measure*.

6. Use the arrows to place the knife in a white area.
7. Tap  to confirm.

*The cutter will make a circular movement while it measures the reflection of the media.*



8. Use the arrows to place the knife in a printed area.
9. Tap  to confirm.

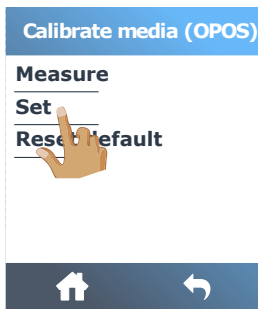
The cutter will make a circular movement while it measures the reflection of the mark colour.  
Then a value is shown that is typical for this combination of media colour - mark colour. Save this value for future use.



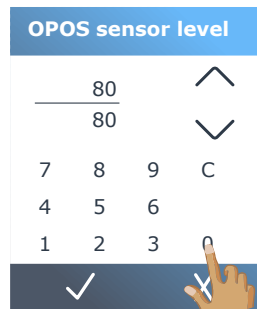
**NOTE:** An error message may appear if the sensor is not able to differentiate between black and white. Make sure that the test has been performed correctly.

*Set value:*

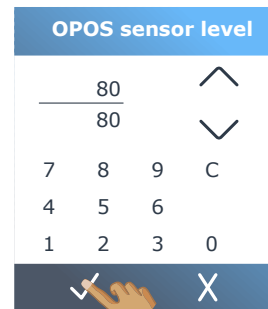
If a combination of media colour – mark colour has already been calibrated and set, this value can be entered directly. Follow the procedure on the previous page up to and including step 4, then continue with the steps below.



5. Tap *Set*.



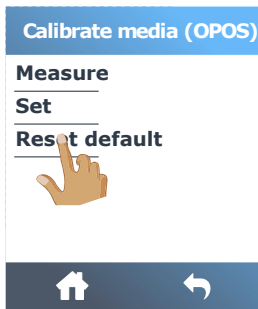
6. Use the arrows to change the value or enter a value.



7. Tap  to confirm.

*Default value:*

Follow the procedure on the previous page up to and including step 4, then perform the following action:




5. Tap *Reset to default*.

## 4 DETAILED OPERATION

### 4.1 Introduction

This chapter includes a detailed list of all parameters that can be changed and tests that can be initiated from the touchscreen. Chapters 1 and 2 of this manual describe in detail the main use of the touchscreen. This chapter can be used as a reference for locating a particular parameter setting or test. This section also explains the less frequently used parameters.

Tap  to access the main menu.

### 4.2 Main menu

The main menu contains parameter settings and submenus. The entire menu cannot be displayed on the screen at once, use the up and down arrows on the right to navigate through the menu.

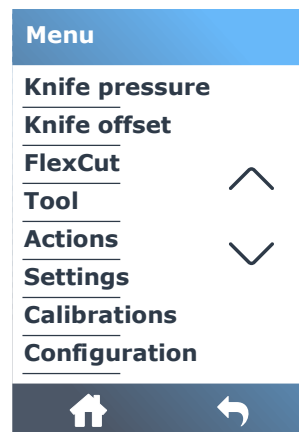


FIG 4-1  
MAIN MENU

#### 4.2.1 Knife/Pen\* pressure

\*Depending on what tool is installed.

This parameter is explained in section 2.2.2.

#### 4.2.2 Knife/Pen\* offset

\*Depending on what tool is installed.

This parameter is explained in section 2.2.3.

### 4.2.3 FlexCut

The advantage of the FlexCut feature is that it cuts completely through the media. In addition, it ensures that the material stays together by means of small media bridges.

There are 5 typical FlexCut parameters:

1. *Full pressure*: This parameter determines the full pressure that is used in FlexCut mode.
2. *Full pressure cut length*: This parameter determines the length that is cut with full pressure, usually the length that is cut all the way through.
3. *Flex pressure cut length*: This parameter determines the length that is cut with reduced pressure or without pressure. This is usually a much smaller value than *Full pressure cut length* – this is the length of the media bridges.
4. *Flex pressure*: This parameter determines the pressure of *Flex pressure cut length*. This is usually a reduced pressure so that the knife only scratches the media or only cuts it only halfway through.
5. *FlexCut Velocity*: FlexCut uses higher knife pressures. Higher knife pressures require a lower cutting speed. With this parameter, the velocity of FlexCut can be set independently from the normal cutting velocity.

### 4.2.4 Tool

Two tools can be used on the S One: a knife or a pen. If the tool has been changed, use this menu to set up the machine to use the newly inserted tool. This is explained in chapter 2.2.1.

### 4.2.5 Submenus

The rest of the menu items in the main menu are submenus and are explained in the sections below.

## 4.3 Actions

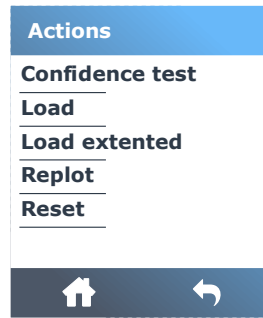


FIG 4-2  
ACTION MENU

### 4.3.1 Confidence test

This submenu allows you to perform a quick electrical and mechanical test of the cutter to ensure that the cutter is fully operational. A media sheet of at least A3/B size must be used for this test. This test always cuts the left side of the loaded media.

### 4.3.2 Load

You can make use of this submenu when loading sheet material. During loading, the maximum material length can be set.

### 4.3.3 Load extended

This action is explained in section 1.5.2.

### 4.3.4 Replot

This submenu allows you to recut the last file sent to the cutter (provided it fits in the buffer).

### 4.3.5 Reset

This submenu allows you to perform a complete reset of the cutter.

## 4.4 Settings

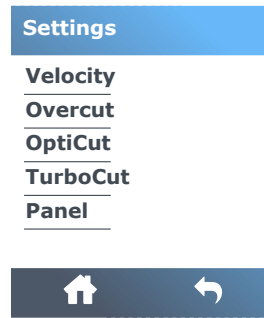


FIG 4-3  
SETTINGS MENU

### 4.4.1 Velocity

Velocity is the bundled parameter to change the speed of the tool/media. This parameter is explained in section 2.3.

### 4.4.2 Overcut

This submenu allows you to generate an overcut to make weeding easier. Each time the knife moves up or down, the cutter cuts a bit further. The overcut setting can be turned off (= 0) or set to any value between 0 (= off) and 10. One unit is approximately 0.1 mm or 0.004 ". Section 2.2.3 explains how to change the overcut value.



FIG 4-4  
OVERCUT

### 4.4.3 OptiCut

This submenu allows you to increase the cutting quality in case the knife is worn out or not calibrated correctly. *OptiCut* is default set to *Off*.

### 4.4.4 TurboCut

This submenu allows you to increase throughput speed without increasing the overall speed of the plotter by speeding up the drag motion. Cutting time is significantly reduced, especially when cutting small, detailed designs. However, some thicker materials might not be cut properly when this feature is activated.



#### 4.4.5 Panel

This submenu allows you to enable or disable the internal segmentation function of the cutter. Segmentation is used for several different applications. The most common are FlexCut and long jobs with or without the roll-up option.

**Paneling:** to set panelling on or off.

**Panel size:** to set the panel size.

**Panel replot:** to set how often a segment should be recut. This function is interesting for material that is thick and difficult to cut. The value of this parameter is ignored if segmentation is disabled. If this parameter is set to 0, the cutter will cut each segment only once. If it is set to 1, each segment will be cut twice.

**Sorting vectors:**

1. *Off:* Default value. The vectors are not optimized. Choose this option when the intelligence of the cutter driver is preferred.
2. *Directional:* The vectors are optimized for the cutting direction (media movement). Choose this option when the cutting pressure needs to be set relatively high (for example when cutting through).
3. *Starting point:* Optimizes the starting point for closed curves. Choose this option when the curves do not close as they should.

## 4.5 Calibrations

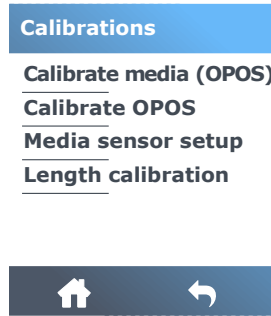


FIG 4-5  
CALIBRATIONS MENU

### 4.5.1 Calibrate media (OPOS)

This calibration is used for particular combinations of registration mark colour and media colour. The procedure is explained in section 3.4.2.

### 4.5.2 Calibrate OPOS

This calibration determines the distance between the centre of the OPOS sensor and the knife tip. This is a media-independent calibration and may only be performed when the knife holder has been removed. The procedure is explained in section 3.4.1.

### 4.5.3 Media sensor setup

The media sensor is calibrated in the factory and detects the end of most common media. However, in a few rare cases, the sensor fails in doing so (e.g. media with a black backing or transparent media). In this case, the sensor can be adjusted so that it detects correctly also with such media.

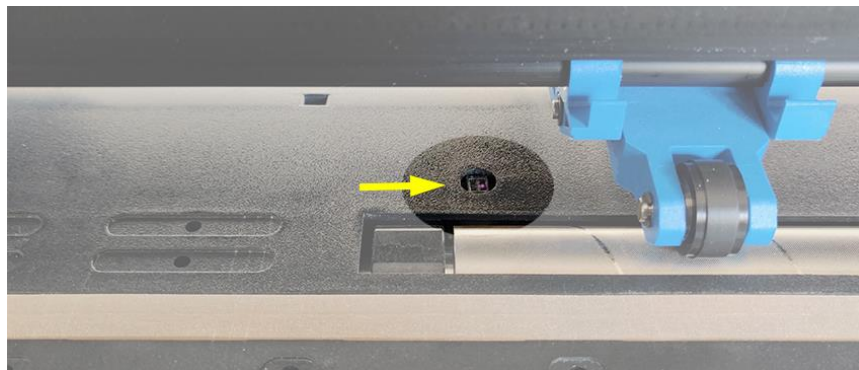


FIG 4-6  
BACK SENSOR FOR MEDIA DETECTION

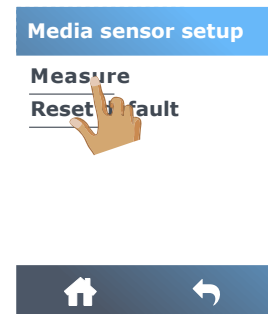
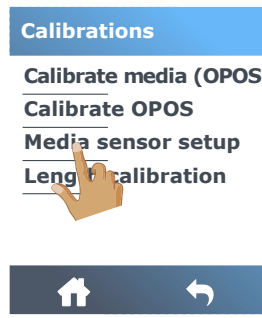
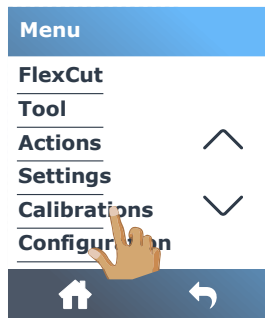


**NOTE:** Media sensor calibration is user dependent. If necessary, select a separate user for a special media and calibrate the sensor. Then switch to that user when that media is used again.

You can choose in the menu to calibrate the sensor for a special media or to make this the default setting. The procedure below describes how to calibrate. If *Reset default* is chosen in step 5 of the procedure, the procedure ends there and the settings for that user for that sensor are reset to default.

1. Power on the cutter.

2. Tap .



3. Scroll down with the arrow
4. Tap *Media sensor setup* and tap *Calibrations*.
5. Tap *Measure*.

The cutter prompts you to load media halfway onto the media sensor. Do this. When the test starts, the cutter moves the media backwards and forwards to cover and expose the media sensor.

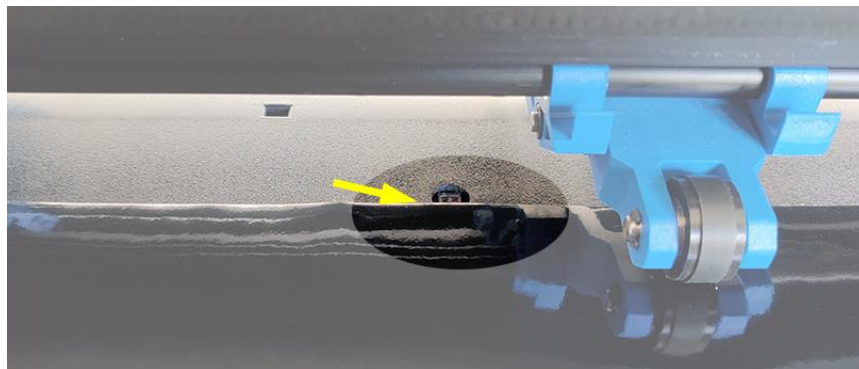
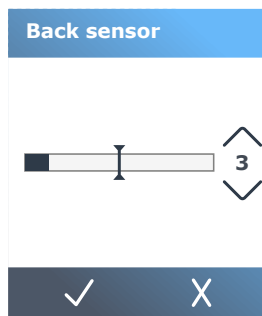
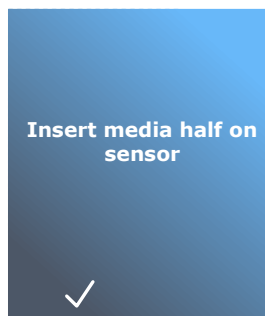
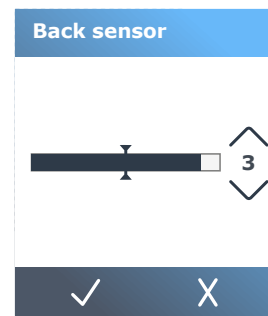



FIG 4-7  
LOAD MEDIA FOR SENSOR TEST



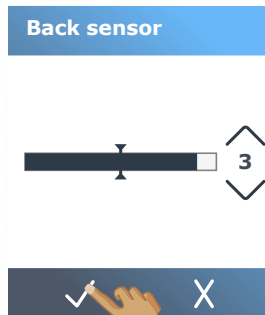
The sensor is exposed.



The sensor is covered.

6. Tap  when the media is loaded.

7. Use the arrows to set the sensitivity between 0 (most sensitive) and 4 (least sensitive). The sensitivity is correctly set when if the sensor is covered, the indicator bar should be (almost completely) black, and when it is not covered, (almost completely) white.
8. Ideally, the slider indicating the sensitivity trigger level **I** should be halfway the indicator bar, both when the sensor is covered and when it is not. If necessary, slide it to the left or to the right.



9. Trigger level is set, tap  to confirm.

#### 4.5.4 Length calibration

Length calibration is explained in section 2.5.

## 4.6 Configuration

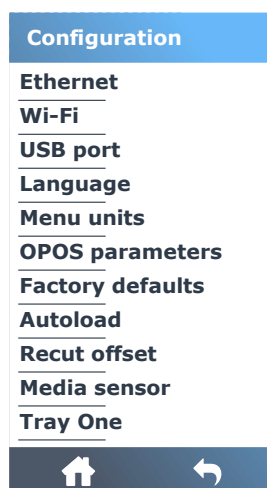


FIG 4-8  
SETTINGS MENU

### 4.6.1 Ethernet

When connecting a cutter to Ethernet, a number of parameters must be set in this menu. This is explained in section 1.4.2.

### 4.6.2 Wi-Fi

Wi-Fi setup is explained in section 1.4.3.

### 4.6.3 USB Port

This parameter can be set to USB port 1, USB port 2, USB port 3, or USB port 4. Because of the different USB IDs, the computer can make a distinction between several cutters connected to it (maximum 4).



**ATTENTION:** The USB ID in the cutting software must be the same as the selected USB ID in the cutter. Each time a new USB port is selected on the cutter and connected to the computer for the first time, Windows will launch a wizard to install a driver.



**ATTENTION:** This change becomes active after rebooting the cutter.

### 4.6.4 Language

This submenu allows you to set or change the dialogue language on the touchscreen.

#### 4.6.5 Menu units

This submenu allows you to select whether the speed and length units are displayed in the metric or the ENG/US measurement system.

#### 4.6.6 OPOS Parameters

The setting of extra parameters is explained in section 3.

#### 4.6.7 Factory defaults

This submenu allows you to set all user parameters to the factory settings.

#### 4.6.8 Autoload

This submenu allows you to change the unrolling procedure for vinyl. When this function is activated, the cutter will unroll the vinyl automatically when required. If this function is deactivated, you need to manually unroll enough media before you start cutting. *Autoload* is activated by default.



**ATTENTION:** Tracking is not guaranteed when *Autoload* is set to *Off*.

---

#### 4.6.9 Recut offset

This submenu allows you to set or change the distances between the jobs when making multiple recuts. The default value is 40 mm.

#### 4.6.10 Media Sensor

The media sensor detects whether the media is loaded. It also detects the end of the media. The sensor prevents damage to the cutting strip and knife tip. The sensor can be activated or deactivated with this menu. The cutter will stop during the loading procedure or while it is cutting as soon as the rear sensor detects the end of the media. The default setting is *On*.

#### 4.6.11 Tray One

The Tray One (automatic sheet feeder) is only compatible with the smaller models of the S One cutting plotter. The Tray One has a separate manual.

## 5 MAINTENANCE

### 5.1 Introduction

The S One cutter series has several sliding surfaces made of smooth metals and plastics. They are virtually frictionless and require no lubrication. They do, however, collect dust and lint which can affect the cutter's performance. Keep the cutter as clean as possible by using a dust cover. When necessary, clean the unit with a soft cloth dampened with isopropyl alcohol or a mild detergent. Do not use abrasives.

#### 5.1.1 Cleaning the drive system

Over time, the sleeves of the drive drum may become clogged with accumulated residue from the media backing, reducing traction.

*Cleaning the drive system:*

1. Unplug the power cord.
2. Apply a mild solvent (normally used to remove old glue residue) on the silver-coloured sleeves and wait for it to dissolve the accumulated residue.
3. Clean with a brush (we recommend using a toothbrush).
4. Repeat the procedure for all dirty drive sleeves.

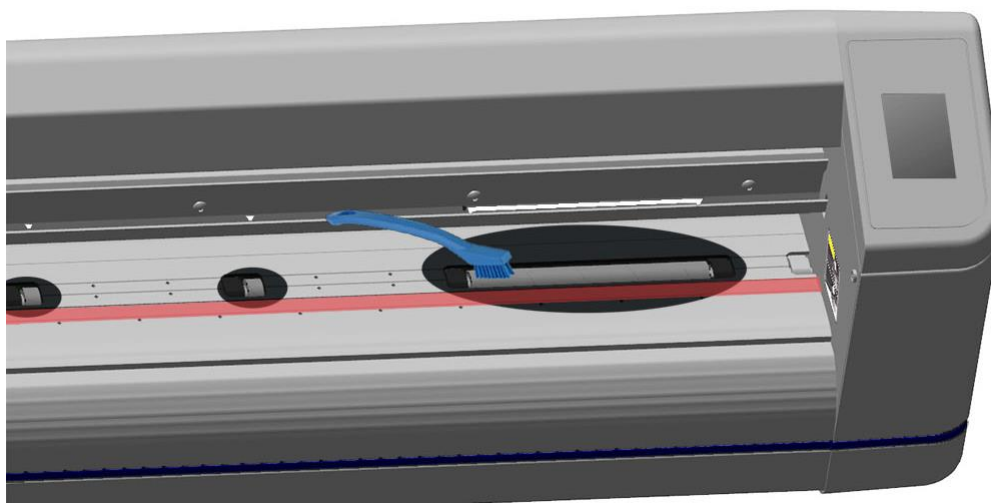


FIG 5-1  
CLEANING SLEEVES

### 5.1.2 Cleaning the media sensors

Over time, the media sensors may become dirty with accumulated residue from the media. This may cause the cutter to malfunction.

Clean the media sensors by swiping them with cotton swabs.

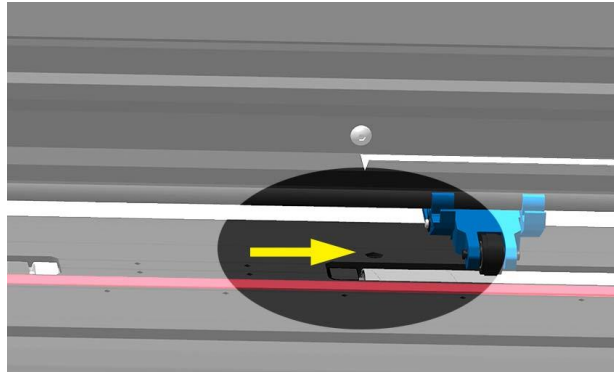


FIG 5-2  
MEDIA SENSORS S ONE CUTTERS



### 5.1.3 Cleaning the Y-Guide Rail

There are 4 sliding surfaces on the Y guiding rail on which the tool carriage slides from left to right. Two sliding surfaces (1) at the front of the guiding rail and 2 sliding surfaces at the rear of the guiding rail (2), directly behind the visible sliding surfaces at the front. Although the shape of the Y guiding rail may vary from model to model, the sliding surfaces are in the same place at the top and bottom of the guiding rail.

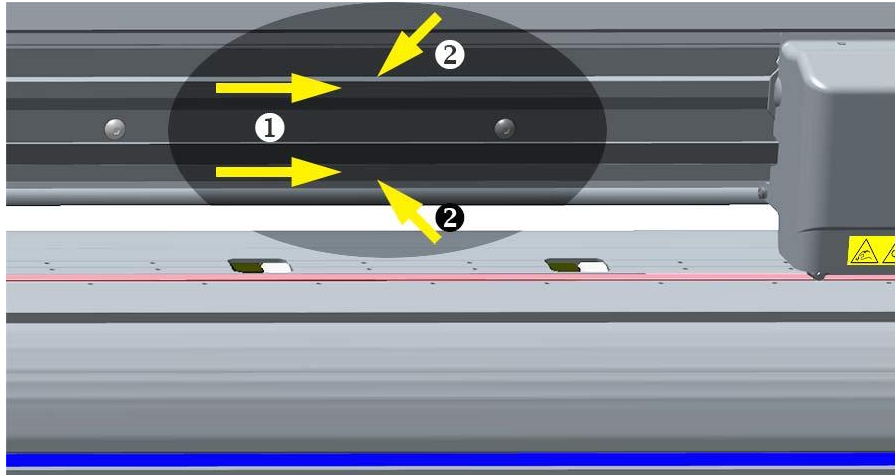


FIG 5-3  
SLIDING SURFACES ON Y GUIDING RAIL

Over time, the sliding surfaces and the rollers of the tool carriage may become dirty with accumulated residue.

*Cleaning the sliding surfaces of the Y-guide rail:*

1. Switch off the machine.
2. Take a soft cloth dampened with isopropyl alcohol or a mild detergent.
3. Clean the surfaces. When the tool carriage is in the way, carefully move it to the left or right.

### 5.1.4 Changing the fuse



**WARNING:** Before changing the fuses, make sure that the cutter is completely disconnected from its power source.



**WARNING:** For continued protection against fire hazard, only replace with fuses of the same type and rating: T2A H250V.

1. To remove the fuses, slightly pry loose the release clamps of the fuse holder. The fuse holder pops out.

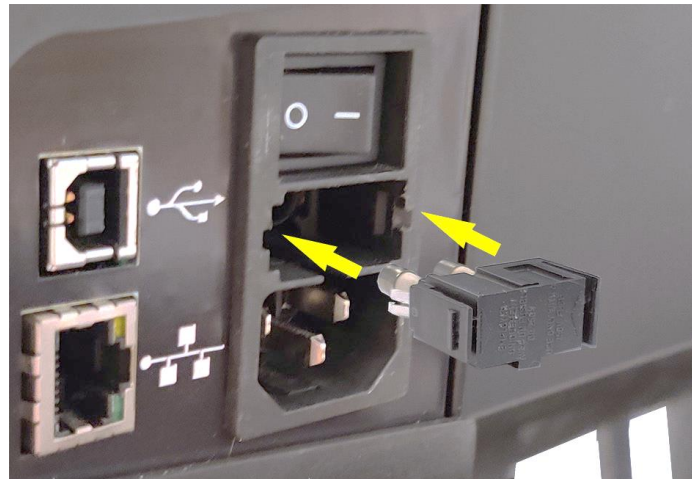


FIG 5-4  
POWER ENTRY MODULE

2. Remove the fuse holder.
3. Pull the fuses out of the holder.
4. Place the new fuses in the holder and click the holder back into place.

## 6 SPECIFICATIONS AND GENERAL INFORMATION

### 6.1 General

#### 6.1.1 Introduction

The S One range of cutters has been designed to cut computer-generated graphic designs on cut sheet or roll vinyl media. Using the integrated optical positioning system (OPOS) allows contour cutting of printed sheets of material. By replacing the knife with a pen, these cutters can also be used to produce inexpensive previews of new graphic designs on paper. The S One series are available in different sizes and different configurations. Depending on the region, certain sizes and or configurations may not be available. Also, branding may be different. In this section, we refer to the basic model names S1D60, S1D75, S1D120, S1D140 and SD160. Where known, it is indicated whether a specification is configuration dependent.

#### 6.1.2 Feature list

##### 6.1.2.1 Hardware

- Integrated roll feed system with media core holders
- Fully adjustable media widths
- Stand with basket (Optional on S1D60 and S1D75)
- Back Media sensor for media detection
- USB, Ethernet, and Wi-Fi capabilities
  - *Note: Wi-Fi only available in Europe, the US and Canada*
- Integrated OPOS positioning and alignment system
  - With barcode recognition
  - OPOS X sensor is automatically raised and lowered

##### 6.1.2.2 Interface

- Portrait Capacitive Touchscreen – 320x240 pixels
- English, Spanish, French, German, Italian, Dutch, Polish, Portuguese
- Metric or English

### 6.1.2.3 Functionality

- Four individually adjustable user configurations (e.g. for setting user-dependent parameters like during length calibration) stored in non-volatile memory
- Autoload for automatic media pull from the roll
- Concatenation and curve smoothing to obtain better cut quality
- OptiCut drag-movement optimisation
- Overcut for easy weeding
- FlexCut for cutting through
- Panelling
- Vector Sorting
- Multiple recut feature (up to 999)
- Automatic cut sheet after a job
- Flash Eproms (upgrade over communication port)
- Print & cut alignment technology : OPOS 2.0, OPOS X, OPOS XY, OPOS XY2, OPOS Extra

### 6.1.3 Software

- GoSign
  - Finishing software cut and print and cut jobs
  - Material Database
  - Windows 7, Windows 8 or Windows 10 (no home version)
  - Action sets to automate the workflow
  - Sorting facilities to shorten the output time
  - Vector clean-up
- MacSign™
  - Plug-in for Illustrator, for direct cutting to Summa roll cutter
  - MacOS X (10.2 or higher)
  - Connection by USB or TCP/IP
  - OPOS support
  - Registration required
- Summa Cutter Control
  - Program to control cutter parameters
  - Windows 7, 8 and 10
  - Utility to upgrade the firmware
  - Possibility to store user configurations on a hard disk
  - OPOS Barcode Server

## 6.2 Technical Specifications

### 6.2.1 Machine dimensions

	S1D60		S1D60 with stand		S1D75		S1D120		S1D140		S1D160	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
<b>Height</b>	304	12	1112	43.8	1112	43.8	1112	43.8	1112	43.8	1112	43.8
<b>Width</b>	970	38.2	970	38.2	1120	44.1	1615	63.6	1765	69.5	1960	77.2
<b>Depth</b>	406	16	704	27.7	704	27.7	704	27.7	704	27.7	704	27.7
<b>Depth Open basket</b>	-	-	1116	43.9	1116	43.9	1116	43.9	1116	43.9	1116	43.9
	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs
<b>Weight</b>	18	39.7	-	-	36	79.4	43	94.8	43.5	95.9	48	105.9

### 6.2.2 Shipping dimensions

	S1D60		S1D75		S1D120		S1D140		S1D160	
	mm	inch	mm	inch	mm	Inch	mm	inch	mm	Inch
<b>Height</b>	470	18.6	470	18.6	710	28	710	28	710	28
<b>Width</b>	1220	48.1	1370	54	1890	74.5	2230	87.8	2230	87.8
<b>Depth</b>	420	16.6	420	16.6	420	16.6	420	16.6	420	16.6
	kg	lbs	kg	lbs	kg	lbs	kg	lbs	kg	lbs
<b>Weight</b>	23	50.7	45	99.2	68	149.9	71	156.5	74	163.2

## 6.2.3 Media handling

	S1D60		S1D75		S1D120		S1D140 <sup>(4)</sup>		S1D160	
	mm	inch	mm	inch	mm	Inch	mm	inch	mm	Inch
<b>Media Width</b>										
Minimum	79	3.2	79	3.2	133	5.3	187	7.4	187	7.4
Maximum	705	27.7	855	33.6	1350	53.1	1500	59	1690	66.5
<b>Pinch rollers</b>	2		2		3		4 (3 for FX)		4	
<b>Max .working Width</b>	590	23.2	740	29.1	1235	48.6	1385	54.5	1580	62.2
Oversized <sup>(3)</sup>	650	25.6	800	31.5	1295	51	1445	56.9	1640	64.6
	mm					Inch				
<b>Max.Working Length</b>	50 m					164 ft.				
<b>Minimum Margins<sup>(2)</sup></b>	25					1				
<b>Rear margin</b>										
Sensor on	30					1.2				
Sensor off	20					0.8				
<b>Tracking <sup>(3)</sup> performance</b>	-8 m/26 feet max. within guaranteed specifications <sup>(1)</sup> for media less than 762 mm (30" wide). -4 m/13 feet max. within guaranteed specifications <sup>(1)</sup> for media larger than 762 mm (30" wide).									
<b>Thickness</b>	0.05 to 0.25 / 0.8 mm with optional sandblast knife 0.002 to 0.01 / 0.03 inch with optional sandblast knife									

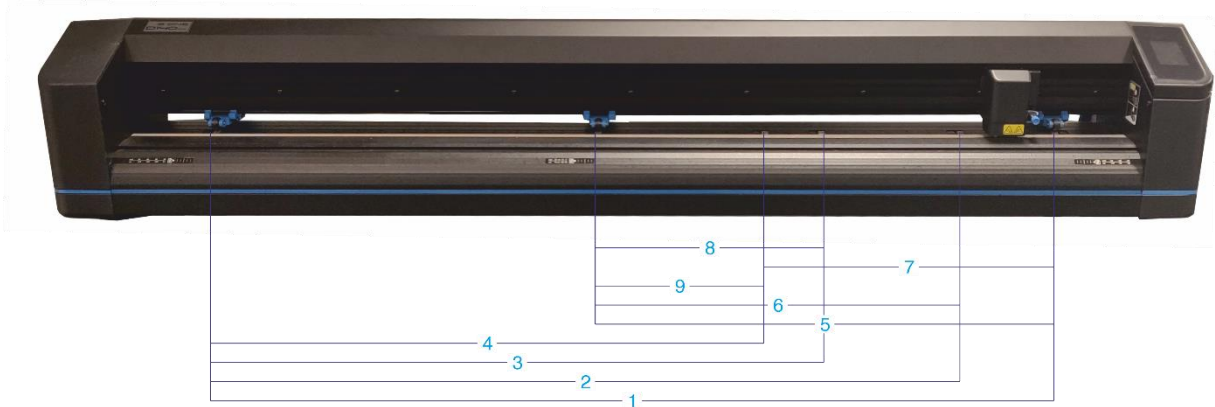
<sup>(1)</sup> Larger Media lengths can be handled, but compliance with specifications is not guaranteed (depends on media type, media size and other parameters not mentioned here).

<sup>(2)</sup> For positioning of the pinch rollers, these margins can be minimized using 'Oversized' mode<sup>(3)</sup>

<sup>(3)</sup> In 'Oversized' mode the tracking performance is not guaranteed.

<sup>(4)</sup> The FX Series have different media specifications as the pinch rollers can only be set in a limited number of positions (see next page).

The S1D140FX has a total of 9 fixed pinch roller positions:



Position	Working area		Target media width (margin)	
	mm	Inch	mm	Inch
1.	1323	52.08	1372 (24)	54 (1.0)
2.	1172	46.18	1220 (23)	48 (0.9)
3.	954	37.55	1000 (23)	40 (1.2)
4.	864	34.01	914 (25)	36 (1.0)
5.	720	28.34	762 (21)	30 (0.8)
6.	570	22.44	610 (20)	24 (0.8)
7.	454	17.87	500 (23)	20 (1.1)
8.	350	13.77	400 (25)	16 (1.1)
9.	260	10.23	280 (10)	11 (0.4)
Minimum for scrap: (outer right position - not shown in picture)				
	84	3.3	105 (10)	4.1 (0.4)

\* Media sensor should be disabled in order to use this position.

### 6.2.4 Performance

Cutting specifications on 0.05 mm (0.002") vinyl with waxed backing, total media thickness not exceeding 0.25 mm (0.010").

<b>Axial speed</b>	50 to 800 mm/s	2 to 32 ips
<b>Maximum Speed</b>	Up to 1131 mm/s diagonal	Up to 44 ips diagonal
<b>Default speed</b>	700 mm/s	28 ips
<b>Axial Acceleration</b>	2 G	
<b>Max. Acceleration</b>	up to 3 G diagonal	
<b>Addressable resolution</b>	0.025 mm, 0.1 mm	0.001", 0.005"
<b>Default resolution</b>	0.025 mm	0.001"
<b>Mechanical resolution</b>	0.0127 mm	0.0005"
<b>Repeatability<sup>(1)</sup></b>	+/- 0.1mm	+/- 0.004"
<b>Accuracy*</b>	0.2% of move or 0.25 mm, whichever is greater <sup>(2)</sup>	0.2% of move or 0.010", whichever is greater <sup>(2)</sup>
<b>Knife pressure</b>	0 to 600 gr. <sup>(3)</sup>	
<b>Pen pressure</b>	0 to 600 gr. <sup>(3)</sup>	

<sup>(1)</sup> Valid within the guaranteed tracking length (see 6.2.3 Media handling). Not valid in 'Oversized' Mode.

<sup>(2)</sup> Excludes differences due to media expansion, stretching, etc.

<sup>(3)</sup> Except for S1D140FX which is 400 gr.

\*Typical values, may vary depending on cutting job and material.

### 6.2.5 Interface

<b>Communication</b>	
<b>Ethernet</b> I/O Port connector	RJ45 female connector
<b>WIFI</b> <sup>(1)</sup>	802.11 b/g/n
Network security	<ul style="list-style-type: none"> <li>• WEP</li> <li>• WPA/WPA2 Personal</li> </ul>
<b>USB</b> I/O Port connector	USB series "B" receptacle (female plug)
Mating connector	USB series "B" plug (male plug)
Version	1.1
<b>Buffer Size</b>	10 MB

<sup>(1)</sup> Not available on S One D140FX



### 6.2.6 Wi-Fi

Wi-Fi is only available in select countries.

This is due to EMC tests done according to European Directive (2014/53/EU):

- EN 303 446-1 Ver. 1.2.1
- EN 301 489-1 Ver. 2.1.1
- EN 301 489-17 Ver 3.1.1
- EN 55032:2015 + AC:2016-07
- EN 55035:2017 + AC:2019-11

And EMC tests were done according to USA & CANADA standards:

- FCC Part 15B / ICES-003 issue 6

Following is a detailed list of countries covered by these tests and thus can have WIFI enabled: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Faroe Islands, Finland, France, Georgia, Germany, Greece, Greenland, Guernsey, Holy See, Hungary, Iceland, Ireland, Isle of Man, Italy, Jersey, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, The Former Yugoslav Republic, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom of Great Britain, Northern Ireland, Monaco, Turkey.

### 6.2.7 Firmware

<b>Language</b>	DM/PL, HP-GL (758x emulation), HP-GL/2
<b>Supported character sets</b>	Standard ASCII
<b>Supported fonts</b>	Sans serif (single stroke & medium)

### 6.2.8 Environmental

(Cutter without media)

<b>Operating Temperature</b>	15 to 35°C	59 to 95°F
<b>Storage Temperature</b>	-30 to 70°C	-22 to 158°F
<b>Relative Humidity</b>	35 – 75%, non-condensing	

### 6.2.9 Power consumption

<b>Number of power cords</b>	1
<b>Input voltage</b>	100-240 VAC $\pm$ 10%
<b>Input frequency</b>	50/60 Hz
<b>Maximum load per power cord</b>	2A
<b>Power consumption during operation</b>	0.25 A (@ 240V) (*) 0.6 A (@ 100V) (*)
<b>Power consumption idle</b>	0.1 A (@ 240V) 0.25 A (@ 100V)

\* Typical values, may vary depending on cutting job and material