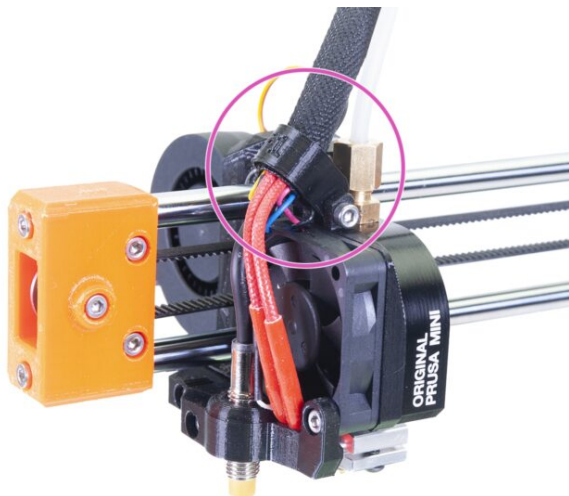


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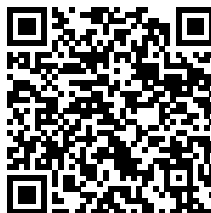
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How to replace a M.I.N.D.A. sensor (MINI)

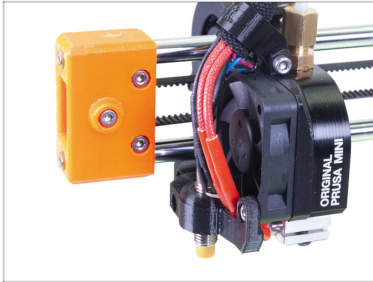


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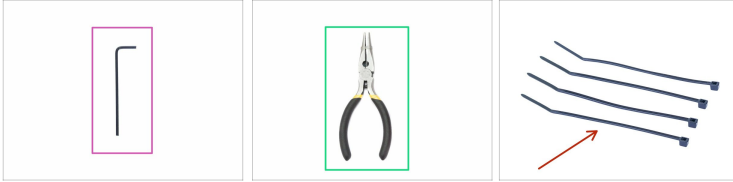
STEP 1 Introduction



- ◆ This guide will take you through the replacement of the **M.I.N.D.A. sensor** and upgrade to the **new hotend parts** on the **Original Prusa MINI**.

⚠ **The M.I.N.D.A. sensor is no longer available and has been replaced by the SuperPINDA sensor (MINI+), please follow this guide instead How to replace SuperPINDA (MINI/MINI+).**

STEP 2 Tools and fasteners necessary for this guide



- ◆ 2.5mm Allen key (1x)
- ◆ Needle-nose pliers for zip ties (1x)
- ◆ Zip tie (4x)
 - ⓘ Will be used later on. Zip ties are included with the M.I.N.D.A. replacement set.
- ◆ Cloth or piece of fabric 15x15 cm (1x)
 - ⓘ The cloth will be used to protect the heatbed. You can use any similar material.

STEP 3 Additional heatbed protection



⚠ Make sure the printer parts - print head and heatbed are cooled down at room temperature.

⚠ Turn the printer off and unplug it from the socket!

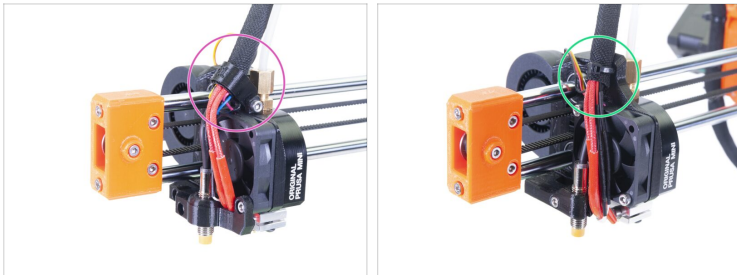
- ◆ **Before these steps, it is recommended to protect the heatbed!**
- ◆ Take off the flexible steel sheet.
- ◆ Use any cloth or piece of fabric, which is thick enough and cover the heatbed. This will ensure you won't damage (scratch) the surface during the disassembly.

STEP 4 Opening the box with the electronics



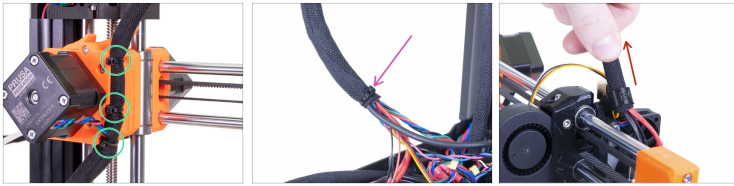
- Release and remove the M3 screw on the box with the electronics.
- Remove the printed cable cover.
- Lift the second electronics cover slightly. Before you remove it completely, pull it first towards the aluminium extrusion to release both pins from the holes.

STEP 5 New vs old design



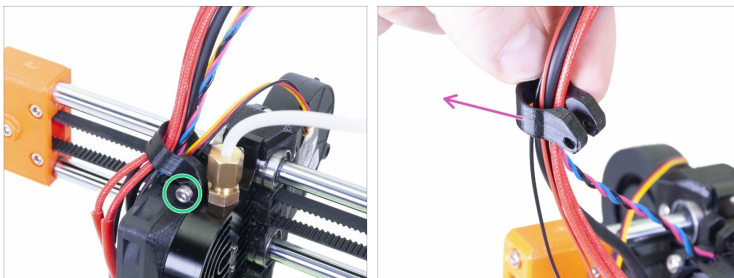
- ① There are two designs of the print head cable bundle guidance.
- ⚠ **Before you start, please check, whether you have:**
 - ◆ **The MINI's new design without a zip tie.** Move to the next step Removing the textile sleeve (new design).
 - ◆ **The MINI's old design with a zip tie.** Skip to Removing the textile sleeve (old design).
- ① If you have the old design, it's recommend to upgrade the printer to the new design. All the necessary printed parts you can download here and print them. Or contact our support team and they will send you all these printed parts. You will need to buy an **extra M3x20 screw** at your nearest hardware store.

STEP 6 Removing the textile sleeve (new design)



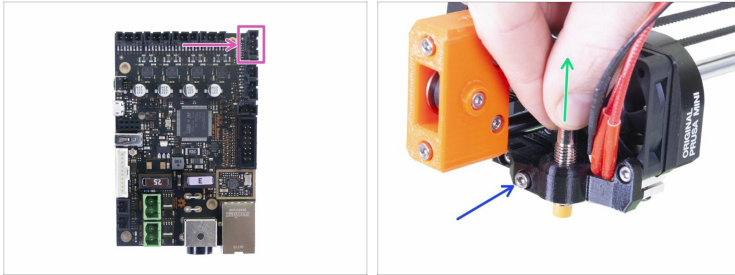
- ✦ Cut the zip ties attached to the extruder.
- ✦ **Carefully remove the entire textile sleeve** from the cable bundle. **Avoid pulling the cables!** *Note: Some units may arrive without this cable tie.*
- ✦ Remove the textile sleeve from the MINI-fan-spacer-clip.

STEP 7 Removing the textile sleeve (new design)



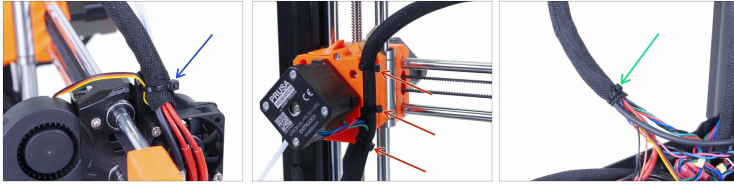
- ✦ Release the M3x20 screw.
- ✦ Remove the MINI-fan-spacer-clip from the cable bundle.

STEP 8 Removing the M.I.N.D.A. sensor (new design)



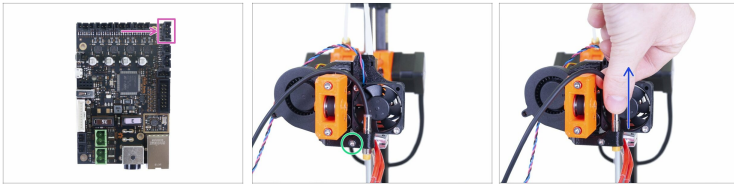
- ◆ **Press the safety pin** on the connector and disconnect the M.I.N.D.A. sensor from the board. **Do not pull out the connector without pressing the pin**, it may damage the connector or the board.
- ◆ Release slightly the screw on the minda-clip.
- ◆ Grab the M.I.N.D.A. sensor by the metal part and pull it out from the minda-holder. **Do not pull the cable!**
- ⓘ If you feel resistance, loosen the screw more.
- ⚠ **Keep all the removed screws and nut for the reassembly.**
- ◆ Now skip to M.I.N.D.A. sensor - parts preparation.

STEP 9 Removing the textile sleeve (old design)



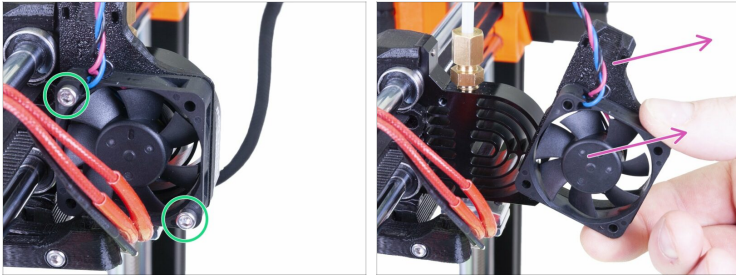
- ◆ Cut off the first zip tie on the print head. **Avoid cutting the print fan cable!**
- ◆ Cut the 3 zip ties attached to the extruder.
- ◆ Cut the remaining zip tie at the end of the textile sleeve. *(The zip tie might not be used on the early units.)*
- ◆ **Carefully remove the entire textile sleeve** from the cable bundle. Avoid pulling the cables!

STEP 10 Removing the M.I.N.D.A. sensor (old design)



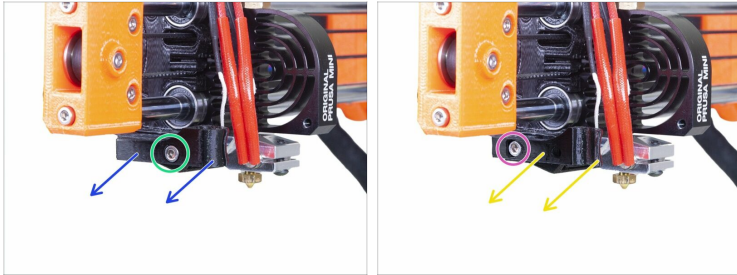
- ◆ **Press the safety pin** on the connector and disconnect the M.I.N.D.A. sensor from the board. **Do not pull out the connector without pressing the pin**, it may damage the connector or the board.
- ◆ Release slightly the screw on the minda-clip.
- ◆ Grab the M.I.N.D.A. sensor by the metal part and pull it out from the minda-holder. **Do not pull the cable!**
- i If you feel resistance, loosen the screw more.
- ⚠ **Keep all the removed screws and nut for the reassembly.**

STEP 11 Removing the hotend fan (old design)



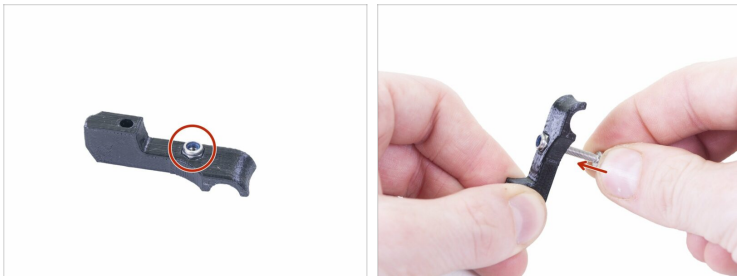
- i** In order to increase the new M.I.N.D.A. sensor longevity, it is recommended to replace some printed parts on the print head. The parts are included in the set, if not, please contact our support.
- ◆** Loosen and remove both screws on the hotend.
- ◆** Remove the hotend fan together with the MINI-fan-spacer (the plastic part between the fan and the heatsink).

STEP 12 Removing the minda-holder (old design)



- ◆ Release the screw on the minda-clip.
- ◆ Remove the minda-clip.
- ◆ Release the screw on the minda-holder.
- ◆ Remove the minda-holder.

STEP 13 Dissassembly of the MINI-minda-holder (old design)



- ◆ Remove the M3nN nut from the MINI-minda-holder.
- i For easier removal, insert the M3x20 screw from the opposite side and carefully push the nut out.

STEP 14 New hotend parts - preparation (old design)



◆ For the following steps, please prepare:

- ◆ MINI-fan-spacer-clip (1x)
- ◆ MINI-fan-spacer (1x)
- ◆ MINI-minda-holder (1x)

ⓘ Use fasteners removed from the old parts.

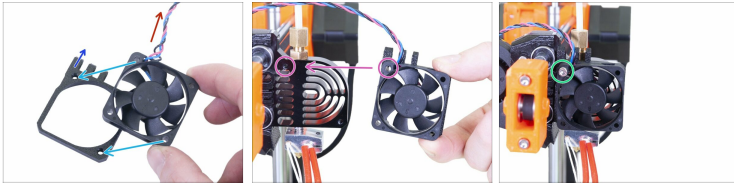
- ◆ M3x20 screw (3x)
- ◆ M3x12 screw (2x)
- ◆ M3nN nut (1x)

STEP 15 Minda-holder preparation (old design)



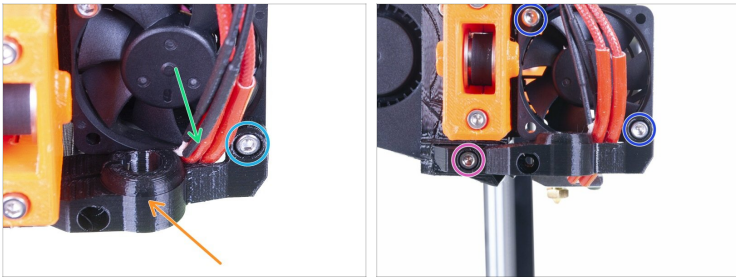
- Insert the M3nN nut into the new MINI-minda-holder.

STEP 16 Hotend fan installation (old design)



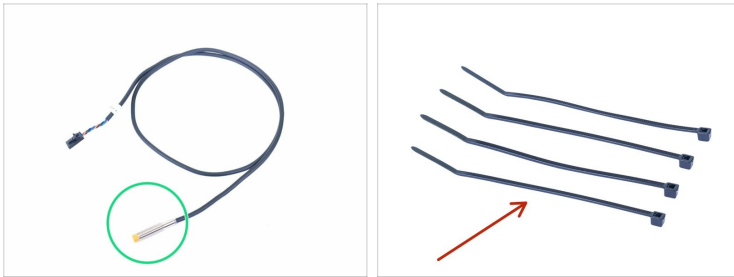
- Place the hotend fan on the MINI-fan-spacer. Align the holes against each other.
- Make sure the sticker on the fan is on the bottom side.
- The "teeth" for the MINI-fan-spacer-clip must be oriented upwards to the left.
- The fan cable must be facing the upper left.
- Place the hotend fan with MINI-fan-spacer on the heatsink.
- Insert and slightly tighten the M3x20 screw to the top left hole.

STEP 17 MINI-minda-holder installation (old design)



- ◆ Place the new MINI-minda-holder to the hotend.
- ◆ Guide the nozzle cables as shown in the picture. Make sure the cables are not pinched.
- ◆ Mount the minda-holder with the M3x20 screw. **Do not overtighten at the moment!**
- ◆ Insert and tighten the left screw M3x12.
- ◆ Tighten both screws in the print head fan.

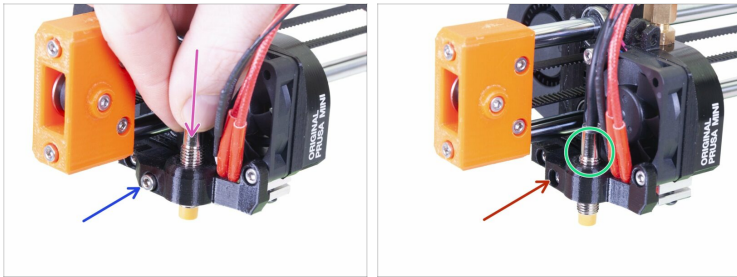
STEP 18 M.I.N.D.A. sensor - parts preparation



◆ **For the following steps, please prepare:**

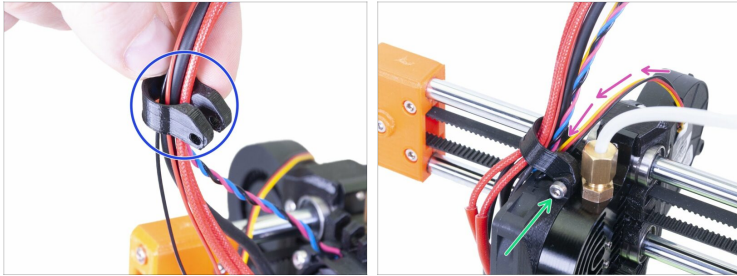
- ◆ New M.I.N.D.A. sensor (1x)
 - ◆ Zip tie (4x)
 - ◆ Old credit card (1x) *new might be demagnetised*
- ⓘ In case you don't have an old inactive credit card, you can use a tip of the zip tie, which has similar thickness.

STEP 19 M.I.N.D.A. sensor installation



- ◆ Insert the new M.I.N.D.A. sensor into the MINI-minda-holder.
- ◆ Screw in the M3x12 screw by 2-3 threads. We'll tighten it later.
- ◆ Adjust the M.I.N.D.A. sensor position, there should be about 2-3 threads above the MINI-minda-holder. *This a temporary position for now. We will set the proper one later on.*
- ◆ Tighten the screw on the minda-holder. **Do not use excessive force, you can damage the minda-holder!**

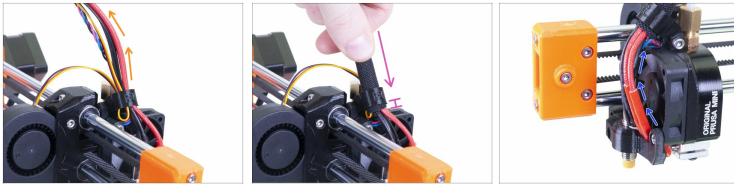
STEP 20 Guiding the cable bundle



- ◆ Push all the cables from the print head into the MINI-fan-spacer-clip. Orient the clip as shown in the picture, the beveled side is up.
- ◆ Guide the print fan cable trough MINI-fan-spacer-clip groove.
- ◆ Slide down the MINI-fan-spacer-clip and mount it on the spacer with the M3x20 screw. Tighten the screw, then release it slightly by 1/4 of turn (90 °).
No nut is needed here.needed here.

 **The MINI-fan-spacer-clip must move freely.**

STEP 21 Guiding the cable bundle



- Merge all cables leading from the hotend together and guide them up.
- Place the textile sleeve on the cable bundle and slide it into the MINI-fan-spacer-clip so that 2-5 mm of the sleeve extends over on the other side.
- **Don't pull the cables, leave some slack around the fan.**

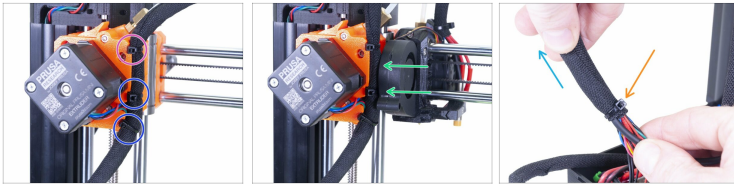
STEP 22 Guiding the cable bundle



⚠ WARNING: Follow these instructions carefully! If you mount the cable bundle at an incorrect position, you will have issues while printing!

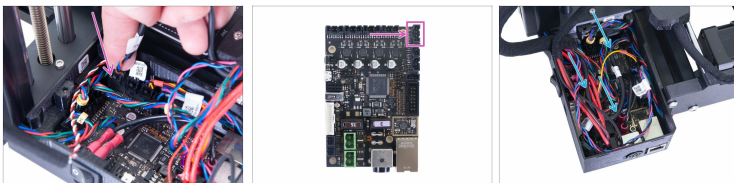
- ◆ Start by rotating the lead screw until the X-axis is all the way up.
- ◆ Move the print head all the way to the right and ensure it is touching the printed part.
- ◆ Bend the cable bundle slightly and use the upmost zip tie slot to partly tighten the entire bundle.
- ◆ Add the EXTRUDER motor cable to the bundle and use the textile sleeve to cover the cables all the way down to the electronics.
- ◆ Check whether the textile sleeve can reach the inner space of the electronics cover. If not, you left too much slack above the X-axis, readjust it.
- ◆ Go back to the X-axis and check once again, that the print head can move all the way to the right without being pulled back by the cable bundle.

STEP 23 Guiding the cable bundle



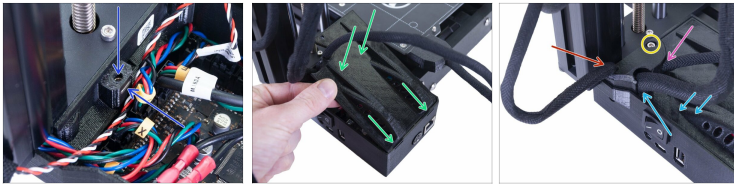
- ◆ Tighten the zip tie, you've installed in the previous step, but use a reasonable force or you might break the cables. Rotate the zip tie's head to the left.
- ◆ Add a second and third zip tie. Again, tighten carefully and rotate the heads to the left.
- ◆ Move the print head all the way to the left to ensure there is no collision between the zip ties and the fan's casing.
- ◆ Secure the textile sleeve with a fourth zip-tie 1-2 mm before the end of the wiring harness. Tighten so that the textile sleeve doesn't move freely. **Do not tighten too much, cables may get pinched.**
- ◆ Try to pull the sleeve by hand and make sure it does not move.

STEP 24 Connecting the new M.I.N.D.A. sensor



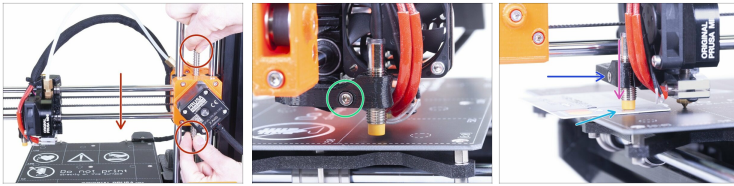
- ◆ Connect the M.I.N.D.A. sensor connector to the appropriate socket. See the picture for more detail.
- ◆ Gently push the cables inside the box.

STEP 25 Covering the electronics



- ◆ Before covering the electronics, make sure the square nut is correctly positioned in the printed part. **The nut must not fall out!** This can cause fatal damage to the electronics.
- ◆ Insert the cover back in, make sure it is properly seated in the holes.
- ◆ **Place the second cover on the top and arrange the cables:**
 - ◆ **Extruder bundle**, ensure the textile sleeve is partially in. Also, it must be tilted away from the printer.
 - ◆ **Heatbed bundle**, ensure the textile sleeve is partially inside the box.
 - ◆ **Filament sensor cable** (optional), ensure that the textile sleeve wrapped around the cables is partially inside the box.
- ◆ Now, tighten the second cover. Check that no cable is pinched.

STEP 26 M.I.N.D.A. sensor height adjustment



- ◆ Using your fingers turn the lead screw and move the entire X-axis down. **Stop when the hotend touches the heatbed! Avoid bending the heatbed!**
- ◆ Release slightly the screw on the minda-holder so you are able to adjust position of the M.I.N.D.A. sensor.
- ◆ Place a credit card under the M.I.N.D.A. sensor or use a tip of the bundled zip tie.
- ◆ Gently press the M.I.N.D.A. sensor down against the credit card.
- ◆ Tighten the screw on the minda-holder. **Do not use an excessive force, you can break the printed part!**
- ◆ Rotate the lead screw manually in the opposite direction to move the axis at least 5 mm up.
- ◆ Now, please follow the instructions for the First Layer Calibration (i3).
