maturix®

Assembly Guide: Type K Thermocouples

How to properly assemble a Maturix type K thermocouple sensor

Materials and tools needed

Preparation

In order to assemble a Maturix type K thermocouple you will need the following tools and materials:

Materials:

- 1 x Type K mini connector
- 1 x Type K thermocouple wire
- 1 x heat shrink tubing (shrink: 3:1, width: 3mm, length: 10mm)

Tools:

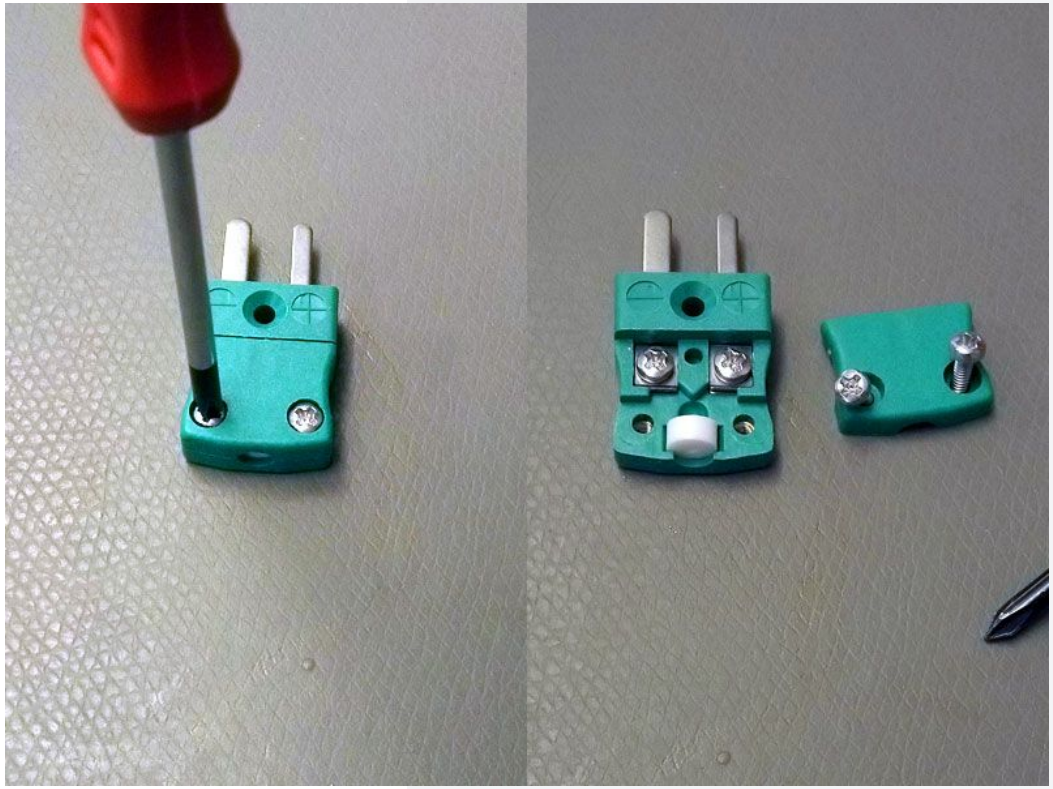
- Phillips screwdriver (PH0)
- Wire stripper

Assembly Guide

Step 1

Assembly Guide

Disassemble the type K mini connector using the screwdriver.

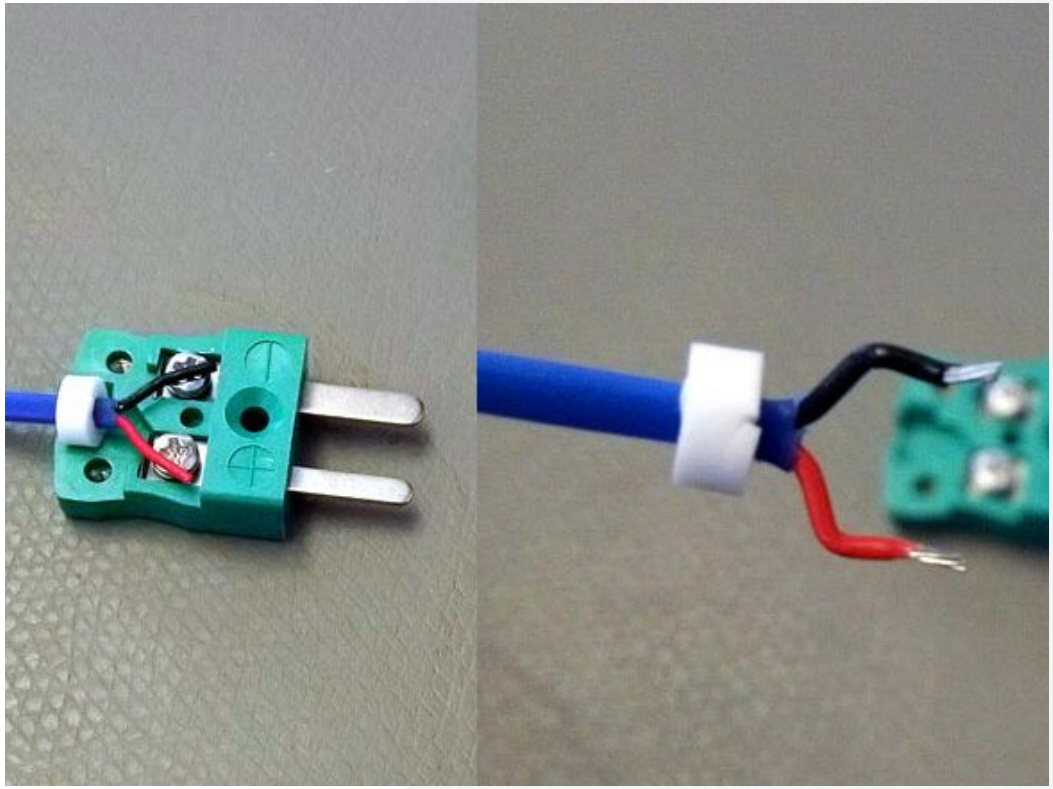


Step 2

Assembly Guide

Prepare the wire to be connected to the type K mini connector.

- Remove the white protection ring and place it on the cable
- Remove the insulation of the outer wire (blue insulation) using the wire stripper
- Adjust the inner wires to fit in the type K mini connector
- Remove the insulation (5-10 mm) of the inner wires (red and black insulation) using the wire stripper

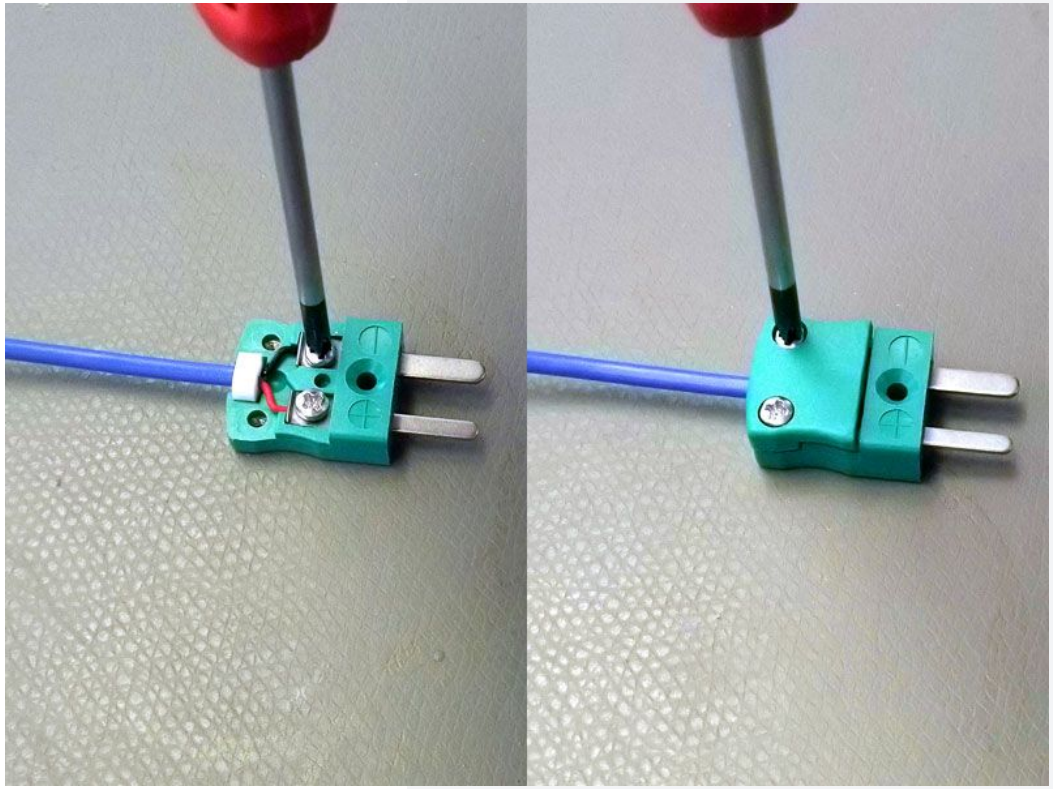


Step 3

Assembly Guide

Connect the cable to the type K mini connector.

- Loosen the screws in the Type K mini connector
- Connect the **red wire** to the positive pole (+ plus)
- Connect the **black wire** to the negative pole (- minus)
- Tighten the screws in the Type K mini connector
- Place the white protection ring in the type K mini connector and reassemble the lid



If you connect the wires the wrong way, you can change the polarity in the Data Editor. However, best practice is always to correctly assemble the thermocouple.

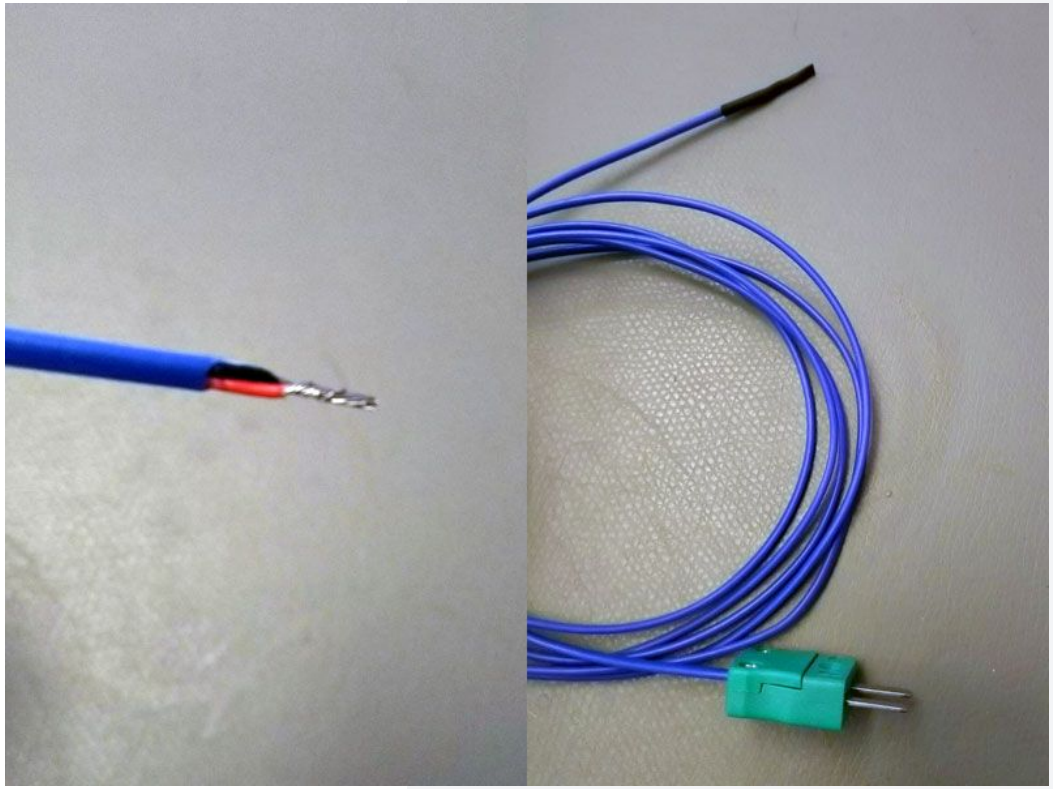
Step 4

Assembly Guide

Prepare the tip of the type K wire.

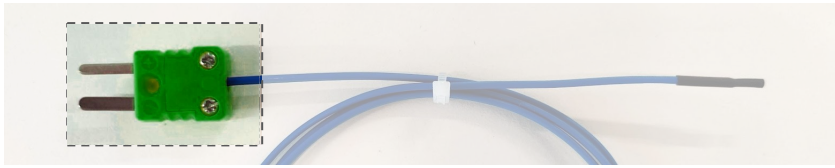
- Remove the insulation using the wire stripper
- Join together the black and red wire by twisting them firmly around each other
- Attach the heat shrink tube and heat it up carefully using a lighter so the exposed wire is entirely covered

Important: Ensure the wires are twisted thoroughly and that the tip is fully protected with heat shrink tubing to not experience any measurement errors!



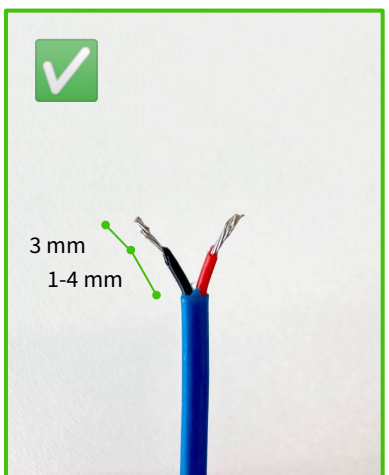
Do’s and Don’ts

Assembly of thermocouple connector



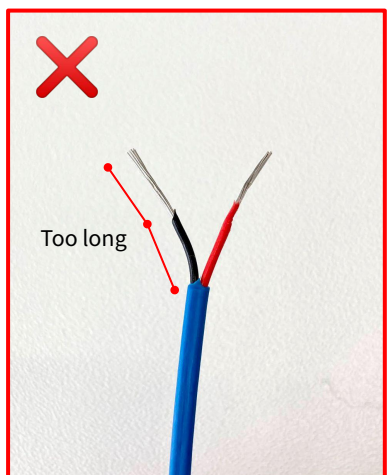
Do’s and Don’ts

1. Remove the correct amount of insulation



STRIPPED CORRECTLY

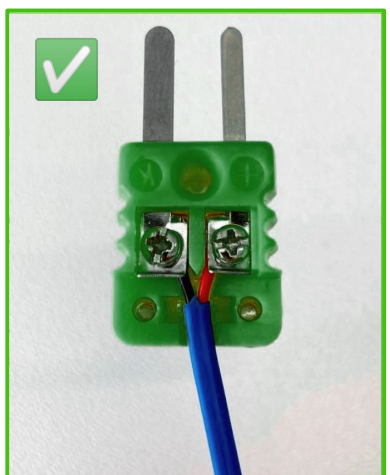
Only remove a minimum amount of cable insulation material as illustrated



TOO MUCH REMOVED

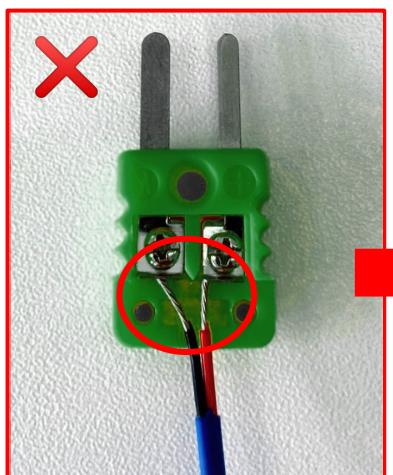
When removing too much, the risk of exposed wires inside the connector is high

2. Ensure that the wires are not exposed or twisted



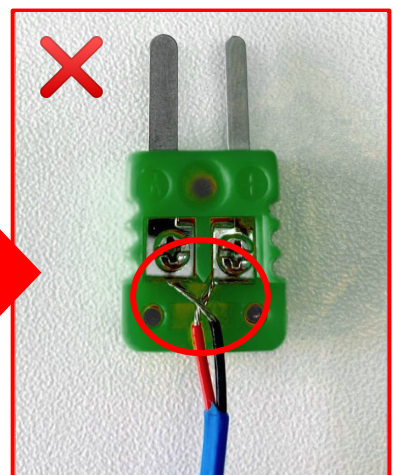
NO EXPOSED WIRES

When assembling the connector, ensure that the wires are
not exposed and visible



EXPOSED WIRE

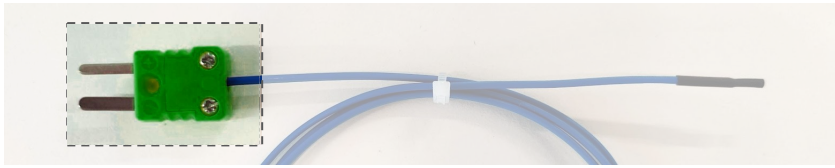
When removing too much, the risk of exposed wires inside the connector is high



TWISTED WIRE

Twisted wires can form a short circuit that results in wrong measurements

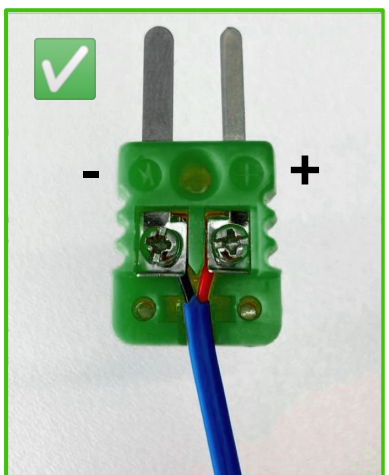
Assembly of thermocouple connector



Do’s and Don’ts

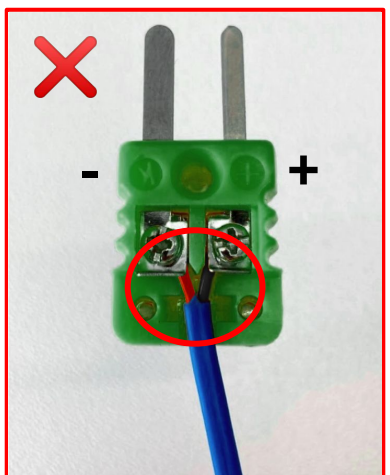
- The **red wire** must be connected to the positive pole at the narrow pin marked with **+**
- The **black wire** must be connected to the negative pole at the wide pin marked with **-** or **K**

3. Ensure correct polarity



CORRECT POLARITY

When assembling the connector, ensure that plus and minus are connected as illustrated



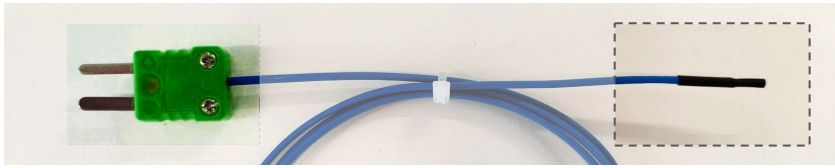
WRONG POLARITY

If the wires are swapped around you will get incorrect measurements *

* If you connect the wires the wrong way, you can change the polarity using the Data Editor.

However, best practice is always to correctly assemble the thermocouple.

Assembly of thermocouple tip

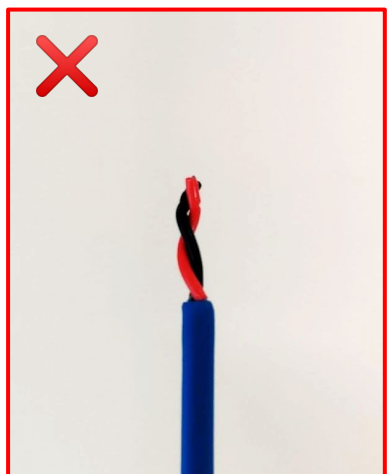


Do’s and Don’ts

1. Ensure that the two wires are sufficiently connected

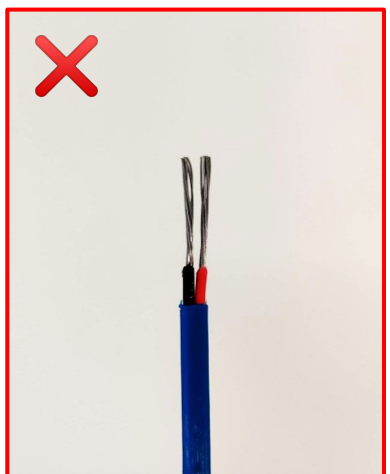
STRIPPED & TWISTED

Remove insulation material and thoroughly twist the two exposed wires



TWISTED, NOT STRIPPED

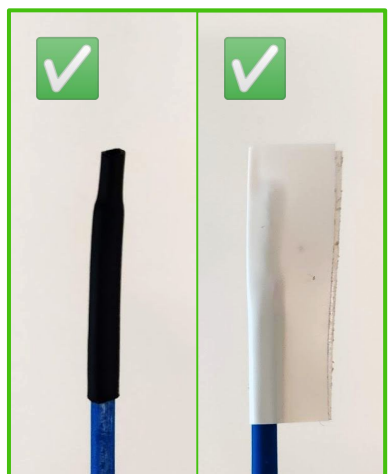
Twisting unexposed wires will not make a connection and give measurement errors



STRIPPED, NOT TWISTED

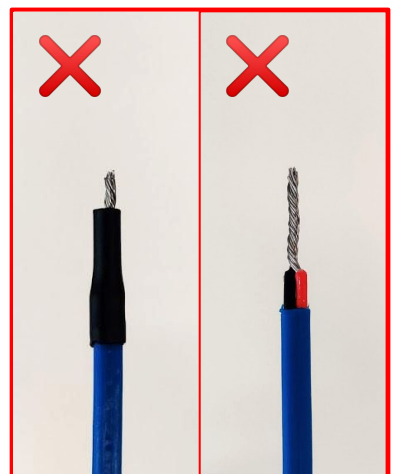
Non-twisted exposed wires will lack a solid connection and give measurement errors

2. Ensure that the tip is sufficiently protected



TIP IS PROTECTED

The tip must be completely isolated with heat shrink tubing or electrical tape



NOT PROTECTED

If the tip is not completely isolated, measurement errors can occur

maturix®

We are Maturix!

Address

Ejlskovsgade 3A,
5000 Odense, Denmark

Phone

+ 45 88441190

Email

contact@maturix.com

Website

www.maturix.com