KSch, 2012-03-08
P541T0001, valid for P-541.T0L

Operating Instructions for the P-541.T0L Open-Loop Stage

The P-541.T0L stage is an open-loop stage for tip/tilt motion. It is to be operated by the E-663 three-channel piezo driver.

This Technical Note contains the following information:

- Safety precautions
- General requirement for tilt motion
- Performing tilt motion around the X axis
- Performing tilt motion around the Y axis
- Dimensional drawings

Safety precautions

NOTICE

Possible damage of flexure joints

If the output voltages of the piezo driver are not set as listed below the flexure joints of the stage can be damaged.

➢ To prevent damage from the stage use output voltages for Channel 1, Channel 2 and Channel 3 as follows:

With tilt motion around the X axis:

- The output voltage of Channel 1 must be 50 V DC.
- The voltages on Channel 2 and 3 must be changed in an opposing way.
- The voltages on Channel 2 and 3 must be changed by the same amount, see example in instructions below.

With tilt motion around the Y axis:

- Channel 2 and 3 must have an equal output voltage.
- The output voltages of Channel 2 and 3 must be changed in an opposing way to the output voltage of Channel 1.
- The changed amount of output voltage of Channels 2 and 3 must be half of the changed amount of Channel 1's output voltage, see example in instructions below.

General requirement for tilt motion

To make tip/tilt motion possible, the three piezo actuators have to expand to half of their possible travel.
To do so proceed as follows:

1. Connect Channel 1 of the E-663 amplifier to the PZT1 cable of the P-541.T0L stage.
2. Connect the amplifier's Channel 2 to the stage's PZT2 cable.
3. Connect the amplifier's Channel 3 to the stage's PZT3 cable.
4. Put an output voltage of 50 V DC to Channel 1, Channel 2 and Channel 3.

Performing tilt motion around the X axis

To perform a tilt motion around the X axis proceed as follows:

1. Keep the output voltage of Channel 1 at 50 V DC.
2. Change the output voltages of Channel 2 and of Channel 3 in an opposing way to each other and about the same amount:

   For example:
   If you set Channel 2 to 70 V DC, you have to set Channel 3 to 30 V DC simultaneously.

Performing tilt motion around the Y axis

To perform a tilt motion around the Y axis proceed as follows:

1. Set Channel 2 and Channel 3 to identical output voltages.
2. Change the output voltage of Channel 2 and 3 in an opposing way to the output voltage of Channel 1.

   NOTE: The changed amount of output voltage of Channels 2 and 3 must be half of the changed amount of Channel 1's output voltage

   For example:
   If you set the output voltage of Channel 2 and Channel 3 to 70 V DC, you have to set the output voltage of Channel 1 to 40 V DC simultaneously.

Dimensional drawings

Decimal places are separated by commas.

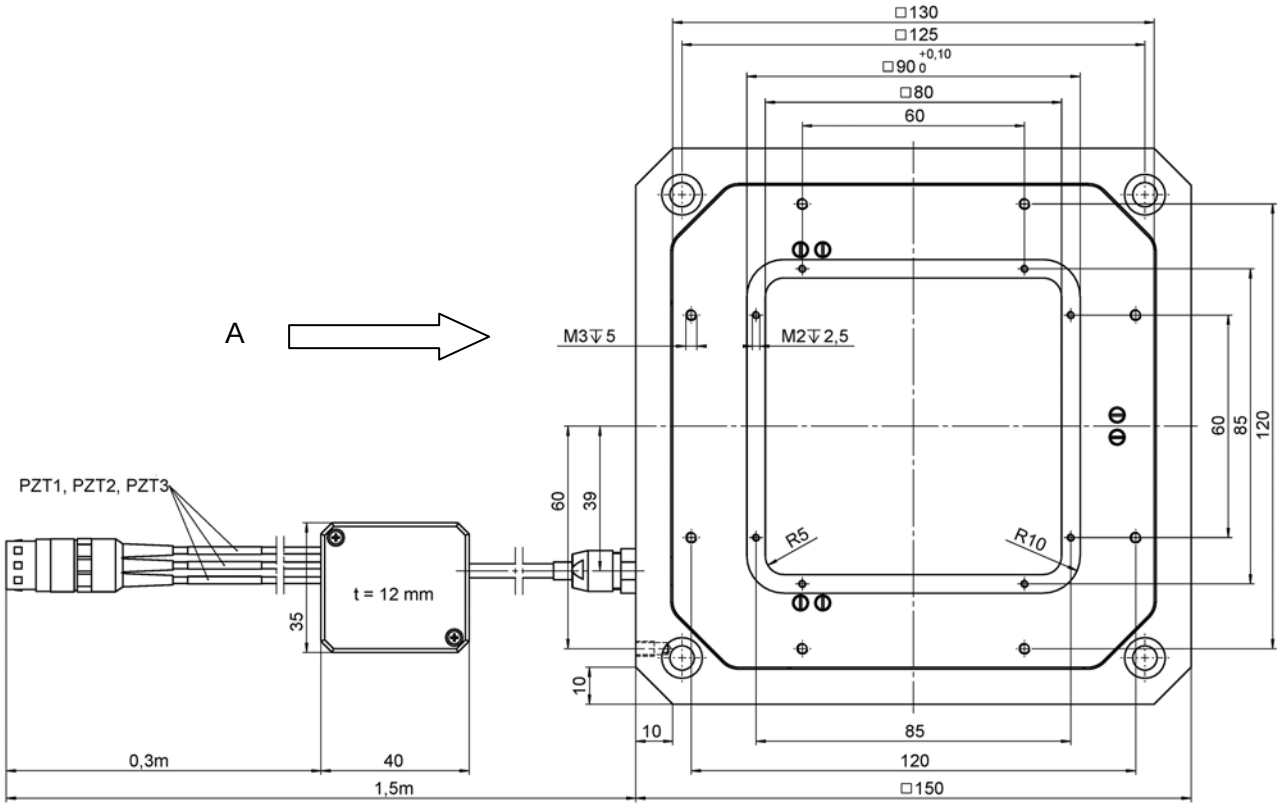

Figure 1: Top view on P-541.T0L

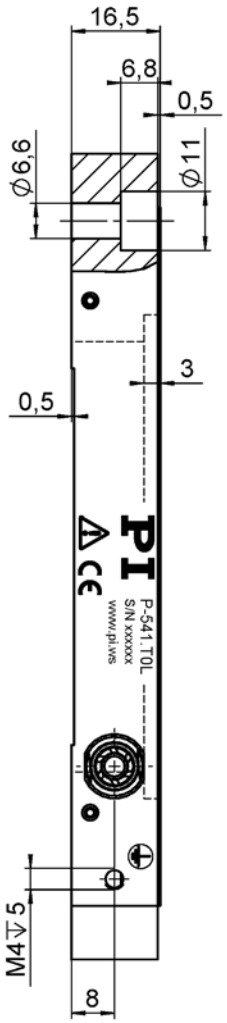

Figure 2: View on P-541.T0L from position A of previous figure