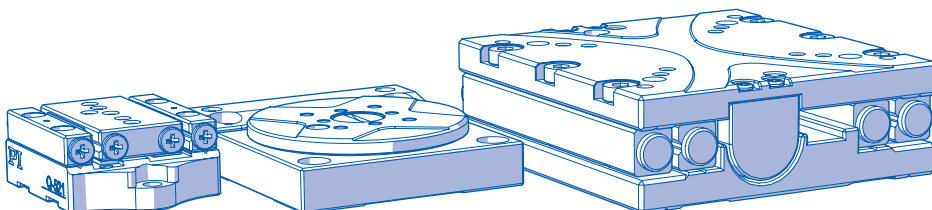


Q-Motion® Positioners

Short Instructions



Q-5xx / Q-6xx



User information

These short instructions contain an overview of the most important safety and handling instructions for Q-Motion® positioners with the product codes given above (x: any number).

Subject to change. These short instructions are superseded by any new release. The latest respective release is available for download on the PI website.



Downloading and reading the manual

The actions during installation, startup, operation, and maintenance require additional information from the manuals of your product. Manuals can be titled as follows: "User Manual", "Technical Note".

Downloading manuals from the website

1. Open the website www.pi.ws.
2. Search the website for the product number (e.g. Q-521).
3. Select the corresponding product to open the product page.
4. Select the **Downloads** tab.
→ The manuals are shown under **Documentation** .
5. Select **ADD TO LIST** for the desired manual and then select **REQUEST**.
6. Fill out the request form and select **SEND REQUEST**. The download link will then be sent to the entered e-mail address.

If you cannot find the manual you are looking for or if you have any questions: Contact the PI customer service via service@pi.de.



Safety

Intended use

This product is a laboratory device as defined by DIN EN 61010-1. The product is intended for indoor use and use in an environment that is free of dirt, oil, and lubricants.

In accordance with its design, the product is intended for positioning loads at various velocities in interval mode. The product is **not** intended for applications in areas where failure would be a considerable risk for people or the environment.

It is only possible to use the product as intended when completely installed and connected, and in conjunction with suitable electronics.

The product may only be installed, operated, maintained, and cleaned by authorized and appropriately qualified personnel.

General safety instructions

NOTICE! Electrostatic discharge can damage the positioner.

- Remove the ESD protective cap from the connector only after the positioner has been connected to the electronics.

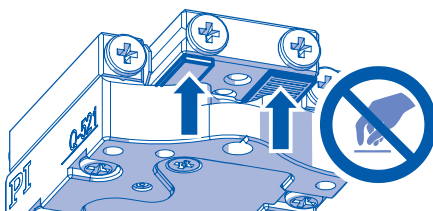
NOTICE! Mechanical forces can damage or misalign the positioner.

- Avoid shocks and drops.
- Pay attention to the maximum permissible forces (see manual).
- Pay attention to flat contact surfaces and similar thermal expansion properties for the base area and load (see manual).
- **Linear stage:** If the motion axis is oriented vertically, the load must be lower than the holding force of the drive (see manual).
- **Rotation stage:** If the stage is mounted vertically, the load must be lower than the maximum torque of the drive (see manual).

- The calculations must also include the masses of positioners moved in multi-axis systems.

NOTICE! The positioner can be damaged by contamination or ambient conditions that increase the electrical conductivity.

- Keep the positioner free of lubricants, dirt, condensation, and conductive materials.
- Do not operate a vacuum-compatible positioner during evacuation.
- Do not touch the encoder's scale of the ceramic rail of the Q-Motion® drive.



Scale of encoder and ceramic rail of the Q-Motion® drive

Handling of vacuum-compatible products

NOTICE! If the piezo actuator is vacuum-compatible, attention must be paid to cleanliness.

- Only touch the piezo actuator with powder-free gloves.
- If necessary, wipe the piezo actuator clean.



Installing

Installing the positioner



CAUTION

If a protective earth conductor is not properly connected, touching the positioner in the case of malfunction can result in minor injuries from electric shock.

- Operate the positioner only with a properly connected protective earth conductor.

- Pay attention to the applicable standards for the protective earth connection.

! NOTICE

Incorrectly fitted screws and locating pins can cause damage.

- Pay attention to the maximum tightening torque (see manual).
- Do not allow screw heads to protrude.
- Select the screw length according to the depth of the mounting holes.
- Do not insert locating pins too deeply into the motion platform.

The electrical contact of the positioner to the protective earth conductor is established via the surface on which the positioner is mounted.

Requirements

- The contact surfaces must be sufficiently conductive.
- The protective earth conductor is connected to the surface on which the positioner is mounted.
- Cross section of the protective earth conductor $\geq 0.75 \text{ mm}^2$

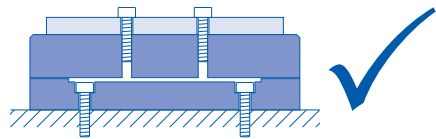
Mounting the positioner

1. Use sufficiently conductive screws in all mounting holes to fix the stage to an underlying surface.
2. Tighten the mounting screws with at least 3 turns (see manual for torque).
3. Secure the screws against unintentional loosening, e.g. with locking paint.
4. Make sure that the contact resistance is $< 0.1 \Omega$ at 25 A.

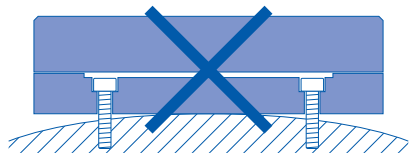
Last befestigen

1. Halten Sie die Bewegungsplattform fest oder sichern Sie sie gegen Bewegungen während der Lastmontage.
2. Befestigen Sie die Last an den vorgesehenen Montagebohrungen.

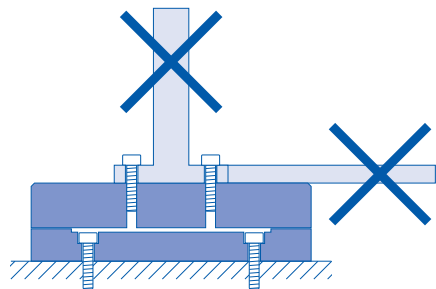
Correct mounting



Mounting on uneven surface



Incorrect alignment of the load



Starting and operating

The surface of the positioner and the surroundings can heat up during operation. Touching the positioner can result in minor injuries from burning.

- If necessary, install touch protection.
- Avoid overheating the positioner, e.g. by reducing the step frequency (see manual) or cooling the surface area.

! NOTICE

Excessively high or wrongly connected operating voltages can cause damage to the positioner.

- Use compatible electronics and cables only.
- Pay attention to the operating voltage range of the positioner (see manual).

NOTICE

A high operating frequency in step mode and continuous use of a short travel range can cause considerable wear on the positioner.

- If possible, reduce the operating frequency and duration.
- Stop the motion immediately if an electronics malfunction occurs.
- If possible, select another part of the travel range as working range at regular intervals.

The instructions required for startup and operation are in the manual for the electronics used.



Old equipment disposal

In accordance with EU law, electrical and electronic equipment may not be disposed of in EU

member states via the municipal residual waste. This refers to devices which are labeled with the symbol for the separate collection of waste electrical and electronic equipment.

If you are established in a member state of the European Union and have an old device from PI, Physik Instrumente (PI) SE & Co. KG will take care of the environmentally friendly disposal of this old device free of charge. You can send the old PI device free of charge to the following address:

Physik Instrumente (PI) SE & Co. KG
Auf der Römerstraße 1
76227 Karlsruhe
Germany

If you are not established in a member state of the European Union: Dispose of your old device according to the national and local rules and regulations.

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