

delta.x haptic devices

force feedback interfaces



delta.3



delta.6

The **delta.3** is a high performance, high precision force feedback interface based on the original delta manipulator. The interface offers 3 active degrees-of-freedom in translation and features a **larger workspace** than the omega.x family of devices. With its unique parallel mechanical design, the **delta.3** can display **large continuous forces** at any location within its workspace.

Built with the same meticulous care as its **delta.3** counterpart, the **delta.6** haptic device offers an **active wrist extension** with full force- and torque-feedback capabilities. Built with a **modular architecture**, the delta.x family of devices are highly accessible systems for developers who wish to **extensively customize their device** to best meet the specification of their application.

Conceived and manufactured in Switzerland, the **delta.x** range is specifically designed for demanding applications where **large workspace and flexibility of use** are critical, including:

- › medical and space robotics
- › micro and nano manipulators
- › teleoperation consoles
- › virtual simulations
- › training systems
- › research

force dimension

delta.x

| | | | |
|-------------------|-------------|----------------|-----------|
| workspace | translation | Ø 400 x 260 mm | (delta.6) |
| | rotation | ± 22 deg | |
| forces | translation | 20.0 N | (delta.6) |
| | rotation | 150 mNm | |
| resolution | translation | 0.02 mm | (delta.6) |
| | rotation | < 0.04 deg | |

electronics

| | | |
|------------------|--------------|-------------|
| interface | standard | USB 2.0 |
| | refresh rate | up to 4 KHz |
| power | universal | 110V - 240V |

software

| | | |
|------------------|---------------------------|-------------------|
| platforms | Microsoft | Windows |
| | Linux | all distributions |
| | Apple | macOS |
| | Blackberry | QNX |
| | WindRiver | VxWorks |
| software | haptic SDK robotic SDK | |

features

| | | |
|--------------------|------------------------------------------------|-----------|
| structure | delta-based parallel kinematics | (delta.6) |
| | hand-centered rotations | |
| | rotations decoupled from translations | |
| | active gravity compensation | |
| calibration | automatic | (delta.3) |
| | driftless | |
| user input | 1 programmable button | (delta.3) |
| safety | velocity monitoring electromagnetic damping | |

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