With its unique 7 active degrees-of-freedom, the sigma.7 is the most advanced master haptic device ever designed by Force Dimension. Its end-effector covers the natural range of motion of the human hand and is compatible with bi-manual teleoperation console design. Its unique custom-designed actuators offer a very high level of forces and torques, making it the most accomplished master device available today. The combination of full gravity compensation and driftless calibration contributes to greater user comfort and accuracy. Conceived and manufactured in Switzerland, the sigma.7 is designed for demanding applications where performance and reliability are critical.

applications

The sigma.7 provides active force and torque-feedback, as well as active grasping for a wide range of applications:

- medical and space robotics
- micro and nano manipulators
- teleoperation consoles
- virtual simulations
- training systems
- research
sigma.7

workspace
  translation  Ø 190 x 130 mm
  rotation  235 x 140 x 200 deg
  grasping  25 mm

forces
  translation  20.0 N
  rotation  400 mNm
  grasping  ± 8.0 N

resolution
  translation  0.0015 mm
  rotation  0.013 deg
  grasping  0.006 mm

electronics
  interface  standard
  refresh rate  USB 2.0
  refresh rate  up to 4 KHz
  power  universal
  power  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
    hand-centered rotations
    rotations decoupled from translations
    active gravity compensation
  calibration
    automatic
    driftless
  user input
    1 haptic programmable button
    4 programmable input channels
  safety
    velocity monitoring
    electromagnetic damping
  options
    right- or left-handed
    integration in custom consoles

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